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ABSTRACT

This paper reanalyzed existing transcript data from: (1) the Study of Academic Prediction and Growth (High School Class of 1969) ; and (2) the New Youth Cohort of the National Longitudinal Study of Labor Market Experience (High School Classes of 1975-1981) in terms of various measures of the quantity of schooling, and in relation to changes in college graduation requirements between 1967 and 1974. Major findings discussed in this paper include: (1) The average credit value of academic courses in high schools has declined considerably since the late 1960s, indicating that less time is being allocated for them and that students are spending less time in the academic curriculum; (2) High school students on all tracks are spending more time in and receiving more credit for "personal service and development" courses, a trend which accounts largely for the results in (1); (3) The dominant student track in high school is now the "General Track"--curriculum dominated by survey, remedial, and personal service coures--and many students in this track go on to college; (4) The secondary school curriculum has become diffused and fragmented over the past 15 years, as have college courses and degrees; and (5) Grade inflation, while significant, has not been as pervasive as assumed, and its locations and sources in the curriculum do not fit easy assumptions. (Author/JM)

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DEVALUATION, DIFFUSION and the COLLEGE CONNECTION: A Study of High School Transcripts, 1964-1981

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Prepared for
The National Commission on Excellence in Education
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ABSTRACT

This project reanalyzed existing transcript data from the Study of Academic Prediction and Growth (High School Class of 1969) and the New Youth Cohort of the National Longitudinal Study of Labor Market Experience (High School Classes of 1975-1981) in terms of a variety of measures of the quantity of schooling, and in relation to changes in college graduation requirements between 1967 and 1974.

The major findings include the following:

1) There has been a considerable decline in the average credit value of academic courses in American high schools since the late 1960s, indicating that comparatively less time is being allocated for them and that students are spending far less real time in the academic curriculum than assumed in previous research.

2) High school students on all tracks (Academic, General, and Vocational) are spending more time in and receiving more credit for "personal service and development courses," some of which are state-mandated. This phenomenon accounts, in large part, for the drop in the time students spend in the academic curriculum.

3) There has been a profound shift of students from both Academic and Vocational Tracks into the General Track, the curriculum of which is dominated by survey, remedial, and personal service courses. The General Track is now the dominant track in American high schools, and a significant percentage of General Track students go on to college.

4) The secondary school curriculum has become diffused and fragmented over the past 15 years--a mirror image of the proliferation of courses and degrees in colleges during the period in question. As smorgasbord distribution systems came to dominate the structure of college "general education" (Liberal Arts) requirements high schools "repackaged" their curricula to reflect higher education models.

5) Grade inflation, while significant, has not been as pervasive as assumed; and its location and sources in the curriculum do not fit easy assumptions, e.g. grade inflation is most noticeable in mathematics, science, and foreign language courses in the secondary schools, not in courses associated with curricular "flabbiness."

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DEVALUATION, DIFFUSION, AND THE COLLEGE CONNECTION:
A STUDY OF HIGH SCHOOL TRANSCRIPTS, 1964-1981

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(prepared for the National Commission on Excellence in Education)

Section A : Description of the Study

I. Background of the Project

The National Commission on Excellence in Education received its Charter from Secretary of Education, T. H. Bell in August of 1981. It then spent four months considering how best to approach the various provisions of the Charter, determining what information was needed and how to gather that information in the most efficient manner possible.

The upshot of that deliberation was an intense 10-month plan of work that emphasized synthesis of existing research, reinterpretation and secondary analysis of existing data, and a series of hearings and public seminars designed to gather a broad range of opinion.(1) Given the Commission's purpose and the necessity of allowing for four months at the end of the process for writing a Final Report, no other strategy was feasible.

The particular project reported on in these pages was undertaken as part of that plan of work. It is essentially a reanalysis of existing data.

The genesis of the project lay in the 3rd of the Charter responsibilities presented to the Commission by the Secretary:

> "To study a representative sampling of university and college admissions standards and lower division [Freshman and Sophomore] course requirements with particular reference to the impact upon the enhancement of quality and the promotion of excellence such standards may have on high school curricula and on expected levels of high school academic achievement."

In its initial discussions concerning this provision of the Charter, the Commission discerned a number of implicit hypotheses. A plan of work was subsequently arrived at to investigate them.

In its subsequent discussions of this provision of the Charter and in the course of its work, the Commission found it necessary to clarify two key terms that are otherwise loosely bandied about in discussions of education: "requirements" and "standards."

As used in this study, "requirements" refers to the <u>time</u> a student is asked to spend studying a particular subject matter or <u>content</u>. Given a convenient shorthand of "requirements = time-on-subject-matter," one can then speak of "requirements" for graduation or credentials in such terms as "2 years of mathematics" or "4 credits of English."

"Standards," on the other hand, is a category of expectations. "Standards" refers to the degree of attainment or proficiency in what is actually learned. "Standards" thus indicate desired performance in education, not merely seat time. "Standards" are measured, and our expectations of performance are noted by "benchmarks"--which may be grades or standardized test scores.

It is important to clarify this rather simple yet important distinction, because this study bears far more on requirements than on standards, and requirements--whether in high school or college-- are usually phrased in terms of courses or major curriculum components.

The hypothesis that served as the motive force for this project was that college graduation requirements (the Commission's reinterpretation and extension of "lower division course requirements") influence both the course offerings of high schools and the course-taking behavior and levels of achievement of secondary school students.

Common sense suggests that it is difficult to separate out the effects of college graduation requirements from those of admissions requirements, and that, in any event, the latter would be far stronger than the former. To the extent to which high school graduates attend college (Burkheimer and Novak [1981] demonstrated that 74% of the high school class of 1972 received some form of postsecondary education by 1979, and that 43% had attended college for two or more years), and to the extent to which they are counseled regarding preparation for postsecondary education (2), it can be reasonably surmised that what it takes to get into college receives far more attention than what it takes to graduate. While we agree with this assessment, we began with the intention of exploring a complementary hypothesis.

When the Commission initially pondered this hypothesis, it recommended the examination of high school transcripts over a period of time during which colleges changed their graduation requirements in significant ways. By such an examination and comparison, it reasoned, we would be able to enlighten the hypothesis, to learn a good deal about the dynamics of interaction between the secondary and postsecondary sectors, and to confirm or deny a variety of public perceptions concerning what secondary school students are actually taking for courses.

The task of selecting, obtaining, coding and analyzing high school transcripts is a truly formidable one. The National Center for Education Statistics, for example, has recently completed (after nearly two years of study) a classification and coding scheme for secondary school courses for use in the longitudinal study of transcripts from the "High School and Beyond" data that begins with the high school graduating class of 1980.(3) The fruits of that effort will not be available for a few years; and while they may be extraordinarily helpful in tracking the trends of this and future decades, the High School and Beyond data do not provide historical perspective. The Commission, on the other hand, had also been charged with examining changes in education over the past quarter century.

At one point early in our work, the staff contemplated its own transcript analysis. We proposed to select perhaps 20 high schools in a stratified sample of American communities, obtain anonymous sets of transcripts from the graduating classes of 1960, 1970, and 1980, and proceed to code courses and analyze changes. That strategy, it swiftly turned out, was extraordinarily naive. We examined a set of transcripts from one high school, and immediately perceived the magnitude of what we were up against.

A search of the literature and discussions with colleagues yielded the fortuitous identification of two projects that had already gathered enough high school transcripts on a national scale and coded them in fine enough detail to produce a viable data base for our investigation. Even more fortuitous were the historical periods (1964-1969 and 1975-1981) covered by those projects, and, as it turned out, the richness of the data in their possession.

In addition, we selected one comprehensive study of recent changes in college graduation requirements and college student course taking behavior. The presentation and analysis of this data is contained in Blackburn, et al, Changing Practices in Undergraduate Education (Berkeley: Carnegie Council on Policy Studies in Higher Education, 1976). Using catalogue statements from a stratified sample of 271 institutions (see Appendix L), Blackburn and his colleagues investigated changes between 1967 and 1974 in terms of:

- the proportion of degree requirements in General Education, major, and electives; and
- the structure (core, distribution, and elective) and field distribution (Humanities, Social Sciences, and Natural Sciences) of General Education requirements.

They then engaged in an analysis of student transcripts at ten of the colleges and universities in order to determine the degree of congruence between actual student course taking behavior and formal requirements. Their unit of analysis was the credit-hour.

The period covered by the Blackburn study was coincidentally felicitous for us, since it falls more or less between the periods during which our two other samples were in high school. The approaches and methods used in the Blackburn study were also appropriate because they distinguished between the curriculum described by institutions and the curriculum actually experienced by students, and measured both curricula by units (credit hours) based on time.

In short, we had the basic tools and sources through which to address the hypothesis. Given what we knew about the more powerful effects of college admissions requirements, however, it did not surprise us that the hypothesis could not be proved. While we did find some intriguing parallels between changes in college exit requirements and those in the high school curriculum over the past 15 years, the focus of this study wound up principally on the high school.

It is appropriate, at the outset, to describe--briefly:

- o the nature of the two projects that produced our data bases;
- o the characteristics of their samples, and the ways we were required to adjust those samples;
- o our method of course coding (designed to render compatible the two sets of data);
- o the questions we asked of the data;
- o our basic units of analysis.

II. Nature of Our Primary Sources

The first data set upon which we drew was the Study of Academic Prediction and growth, a project located at Johns Hopkins University under the direction of Dr. Karl Alexander. The Study of Academic Prediction and Growth deals solely with the high school graduating class of 1969 (students who entered high school, at the earliest, in 1964). The data for this study were originally collected by the Educational Testing Service starting in 1961, and covered a variety of topics and measurements. Thus, the data include--for example--achievement, placement, PSAT, and SAT scores for roughly 14,700 students from the time they were in the 5th grade through graduation from high school. Transcript data were available for 6000 of these students, and we refer to the information on this subset as "the Hopkins data."

The transcript data that ETS originally collected along with these other measurements lay unused for many years until Dr. Alexander and his colleagues began the laborious task of coding the incredible number of course titles that appeared on those transcripts, a task that resulted (even after distillation) in approximately 1000 titles. Subsequently, Dr. Alexander and his colleagues engaged in a variety of studies of that information, principally with the objective of understanding the complexity of tracking in American secondary schools.(4) The contributions of these studies have been considerable; but it is important to point out that our purposes were different, and hence that some questions would be asked of this data that had simply never been asked before.

The case was similar for the second data set, the New Youth Cohort of the National Longitudinal Study of Labor Market Experience. This study is housed at the Center for Human Resource Research at the Ohio State University. The purposes of this study are reflected, in part, in its title; and the individuals whose transcripts it obtained were in high school between the years 1971-1981. As in the case of the Hopkins data, the transcripts were collected and coded as a secondary consideration--which is only to say that, while important, the analysis of transcript data was not a primary objective of the study.

Nonetheless, under the direction of Ms. Patricia Seitz of the National Center for Research on Vocational Education, this study also engaged in the mind-boggling task of coding the course and student information on nearly 6000 transcripts. Again, the process took a long time, and resulted in about 550 course titles. We, in turn, asked some questions

of this data that had never been asked before, and, as in the case of the Hopkins transcripts, new combinations of data had to be created.

III. Characteristics of the Samples

The two samples in question were obtained in different ways (partly reflecting the principal objectives of their respective projects) and thus, superficially, seemed to be very different samples. Some statistical adjustments were necessary and were made in order to help us work with roughly comparable sets of student transcripts.

Sampling: The Hopkins sample drew from 27 high schools in 17 communities of different sizes, socioeconomic characteristics, and proportions of high school graduates continuing on to college. Nonetheless, no city with a population of more than one million was represented. The South as a geographical region is also underrepresented in the sample because fully two-thirds of the southern high schools in the larger study did not have complete transcript information for their graduates. Given the fact that the decisions on what to sample and why were made in 1960 by ETS, we obviously cannot go back in time to construct a textbook case, nor, given the questions we were asking, did we feel that weighting one sample would have solved the problem. But having used and manipulated this data for a number of months now, we feel reasonably comfortable with it. The key characteristic of the Hopkins data that controlled our analysis is that it involves only public high school graduates. The transcripts were obtained en mass from the 27 high schools, though with permission of the participants.

The Ohio State data came from a household screening process that produced a national probability sample--a very different kind of sample. Not only that, but it originally included a supplementary sample of blacks, Hispanics, and economically-disadvantaged whites that resulted in both an overrepresentation of these groups and an overweighting of the South as a geographical region. As a result of this sampling technique, too, approximately 8% of the students in the sample attended private schools and a over a third of the transcripts were incomplete (i.e., though we cannot tell for sure from the data, a significant percentage of students in the sample probably did not graduate from high school). The transcripts were obtained from individual high schools after home interviews with the subjects (and with their permission, of course). These interviews allowed the gathering of a great deal of information about the household and the students' backgrounds and work history that the Hopkins study does not possess (on the other hand, the Hopkins study includes test data on virtually all of its students, whereas the OSU study did not gather sufficient information of this type).

Information concerning a student's track (Academic, General, or Vocational) in high school was very important to us. For the OSU data, that information was virtually complete, as the question was asked in the course of the home interview (i.e. track information was self-reported). For the Hopkins data, track identification is missing in approximately 14% of the cases because that information was collected by a questionnaire administered in class, and some students were either

absent or skipped the question. We recognize the complications that may result from self-reported track identification and will discuss them at an appropriate point in our analysis.

Given these and other minor misfits, we made a number of decisions concerning which transcripts would be subject to our analysis, and what kind of adjustments would have to be made in the samples. The major decisions were as follows:

- o Only public high school students would be included;
- o Only public high school graduates would be included;
- o Only high school graduates with complete transcript information (for either 9-12 or 10-12 high schools) would be included;
- o Nonetheless, we would run separate analyses of transcripts from (a) students in the Ohio State sample presenting incomplete transcripts, and (b) students in the Hopkins sample who were missing track information.

After a trial run based on those decisions, it became apparent that, compared with the characteristics of the public high school graduating classes of 1979-1981, the Ohio State data was distorted in a number of respects, particularly in its ratio of whites to minorities. Despite the fact that the original OSU sample was rendered considerably smaller than the Hopkins sample by our major decisions, we had to reduce it even more by random techniques.(5) Having reanalyzed the data, we are comfortable with the results, despite the fact that the OSU sample is half the size of the Hopkins sample. While further adjustments are always possible, there is a point of diminishing returns.

The characteristics of the two samples used in this analysis, then, are reported on page 7.

It is important to note that the potential of this study is limited by comparable features of the data sets; but that our purpose was to suggest some potentially productive ideas and lines of inquiry, not to run a textbook case. Ours may be described as a study of the aggregate quantity of schooling in different subjects of students who graduated from American secondary schools on either side of a period in which colleges changed their curricular requirements in significant ways. That obviously leaves a great deal out. Our samples may be rich enough for our limited purposes, but they are simply too small to allow meaningful comparisons by such variables as school size and location, race, sex x race, background characteristics, etc. These and other variables will be addressed by future studies using data from both the National Longitudinal Survey and High School and Beyond (hereafter referred to as NLS and HSB respectively), principally the latter.

IV. Course Coding

The course (and not the individual student) is the fundamental unit of analysis in our approach. The course is a standard "house" within which students live for measured periods of time, and within which most schooling (as opposed to learning) occurs. It is thus a category that allows one to analyze aggregate behavior, and it was aggregate behavior

TABLE 1
Characteristics of Samples

	I (Hopkins)	II (Ohio State)
Total N	5980	2877
Sex		
Male	49.0%	45.6%
Female	51.0	54.4
Race		
White	82.1%	79.4%
Minority	17.9	20.6
Geographic Region		
Northeast	29.3%	19.5%
Central	32.5	31.4
South	6.3	32.1
West	31.9	17.0
Year Graduated		
1969	100.0%	----
1975-1978	----	50.0%
1979-1981	----	50.0
Track		
Academic/College Prep.	48.8%	36.4%
General	12.0	42.5
Vocational	25.6	19.0
No Information	13.6	2.1
Class Rank (by decile)		
1	11.8%	12.1%
2	11.5	12.7
3	11.6	10.0
4	11.5	10.5
5	11.6	9.8
6	11.0	10.3
7	10.7	10.2
8	10.6	9.5
9	9.5	8.1
10	0.0	6.7
Missing from original N:	27.2%	18.5%

in which we were interested, since most assessments of change in education refer to the rule and not to the exceptions.

In order to render into a coherent and manageable framework the myriad of course titles in both the Hopkins and Ohio State data (as well as to insure that when we analyzed the data by course, there would be enough information for each discrete item), we created 131 course categories using some very basic curricular principles. These categories are listed in Appendix A.

These categories allowed us to engage in some fairly fine-tuned analysis without becoming so fine-tuned that we would lose sight of our principal objectives and be lost in a welter of both detail and potential disagreements.

Some of these course categories contain one and only one course title, e.g. French 2. Others serve to group many course titles. For example, "Specialty Shop I," as a "course," contains such titles as "Electrical Shop I," "Metal Shop I," "Auto Body Shop I," and a half-dozen others like them. By so doing, we can distinguish the introductory level specialty shop courses from both "General Shop" and advanced specialty work ("Specialty Shop II") within the industrial arts curriculum.

Given the fact that Hopkins and Ohio State had independently decided what specific title on a high school transcript went into which of their course categories, it was remarkable that when we were done, there were only two categories out of our 131 in which the original principles of coding were not comparable, "Physics 1" and "American History 2." The reasons they are not comparable are rather simple. In the case of Physics 1, Ohio State had included "Physical Science" (which in many high schools is a kind of general science course offered in the 9th or 10th grade) and we could not separate it out. As for American History 2, Hopkins had used chronological criteria (e.g., "American History Since the Civil War") in the original coding whereas Ohio State had used topical criteria (e.g., "The History of the American City").

V. Questions Asked of the Data

We asked the same set of questions of the data for each of the following groups of students:

1) All graduates, i.e. the total samples;
2) Graduates on the Academic/College Preparatory Track;
3) Graduates on the General Track;
4) Graduates on the Vocational Track;
5) Graduates with no track information (Hopkins data only);
6) Students with incomplete transcripts (Ohio State data only).

In our trial analysis, we also asked these questions for all graduates by grade (i.e. 9, 10, 11, and 12), but without track distinctions. In this second analysis, we did not.

For purposes of this analysis, we are concerned only with the first four (4) of those groups of students.

Within each group of students we asked the following questions for each of the 131 course categories:

1) What percentage of all the credits generated were generated by this course?
2) What percentage of all the students in this group took this course?
3) What was the average credit value of this course?
4) What was the mean Grade Point (on a scale of 0.0 to 4.0) awarded in this course?
5) What percentage of students in this course received grades of (respectively) A, B, C, D, and F?

Those are the five basic questions (though to get to the answers, we had to ask a half dozen other intermediary questions, each of which produced data that is helpful in resolving minor methodological and interpretive issues).

Why did we ask these particular questions? And why did we use, as our principal units of analysis, "credits" and "credit value"?

Excluding the question of the college connection, our principal interests were two-fold:

(1) to investigate the changing values of the American secondary school curriculum in terms of time-on-subject-matter;
(2) to determine, if possible, the relative coherence of high school student course-taking behavior over time.

In both high schools and colleges, credits are proxy measures for time: they indicate the ideal amount of time allocated for learning a particular subject. To the extent to which a student fulfills minimum local requirements for the use of that time (hence completing various courses) these measures become bona fide units of accounting.

The time we allocate, of course, is not time we actually use, anymore than "requirements" are "standards." Our data obviously cannot indicate what is taught in the time allocated, how it is taught, and what students actually learn. Nor can we determine the amount of allocated time that is lost due to absences and interruptions of the school day (which may be more frequent in some high schools than others).(6) And we obviously cannot determine students' use of non-school time for learning purposes. With all those limitations, there is still much that can be learned from an analysis of time-on-subject-matter.

VI. Units of Analysis

Our key units of analysis in examining time-on-subject-matter are: (a) the percentage of credits generated by a course; (b) the percentage of students taking a course; and (c) the mean credit value of a course. How did we arrive at each of these, and what do they mean?

A. Percentage of Credits Generated by a Course

To determine the percentage of credits generated by a particular course, it is necessary, first, to determine the total number of credits earned by all students in a given category (e.g. all graduates, Academic Track graduates, etc.), and then to determine the number of credits earned by those students in that particular course. The ratio of the latter to the former produces the percentage.

For purposes of this basic calculation, students who failed the course received 0 credits (hence, our unit of analysis does not reflect total classroom experience, only successful completion of courses). Failure rates were important to us for other reasons as well, but they are particularly important in interpreting changes in credits generated by a course over time.

If a "course" category contained more than one title (e.g. Specialty Shop I), credits were generated each time a student took and passed a course in that category. Likewise, some courses are obviously taken by students more than once (e.g. Physical Education), and credits were entered under the category each time a student took and passed the course.

The original data coding teams at both Hopkins and Ohio State had previously determined the amount of credit to be awarded for individual courses, and had regularized the assignment of credit from different high schools. Campbell et al (1981) developed a conversion system relating credits to course hours on the basis of their coding experience for the New Youth Cohort, and the Hopkins researchers confirmed that they had used roughly the same assumptions five years earlier. Since the majority of our analysis relies on the definition and assignment of credit, we could not have performed this study without such comparability.

Why did we ask about credits generated by courses and not years of study by students? As previously noted, credits are based on actual time allocated to a subject. One (1) credit (or Carnegie Unit, or whatever a secondary school calls it) represents an ideal time of--let us say--5 days per week, one hour per day, for a 180-day school year. Any fraction of that credit or Unit is thus based on more or less real time allocated.

On the other hand, to ask how many years or semesters a student spent learning a particular subject or how many courses a student took in a particular field would not result in a measure of real time. Hence, we did not find existing measures, such as those used by the National Longitudinal Study and High School and Beyond (semesters) or those provided to the Commission by the College Board on SAT-takers (years), to be adequate.

Indeed, when one matches our units (percentage of credits generated by courses) for Academic Track students against those provided by the College Board for SAT-takers (average student-years of study), a number of discrepancies and outright contradictions emerge:

TABLE 2

	Ave. Yrs. of Study (College Board)			% of Creds. Generated (National Commission)		
Gen. Subject Field	1973	1981	Change	1969	1976/81	Change
English	3.47	3.96	-0.03%	21.0%	19.6%	-6.6%
Mathematics	3.34	3.47	+3.9%	14.0%	13.4%	-4.3%
Social Studies	3.28	3.20	-2.4%	15.9%	14.9%	-6.3%
Biological Sciences	1.36	1.40	+2.9%	5.0%	5.2%	+4.0%
Physical Sciences	1.47	1.77	+20.4%	4.9%*	6.2%*	+26.5%*
Foreign Languages	2.42	2.17	-10.3%	11.5%	7.7%	-33.0%

While the two groups at issue here are not wholly comparable (e.g. not all Academic Track students take the SATs and not all SAT takers are Academic Track students), they are close enough in basic characteristics so that the difference between the two measures of time is rather obvious. If credits are proxy measures for actual time allocated, then the decline in all areas but the sciences is far greater than had previously been supposed (and in the Physical Sciences, we think the rate of increase has been falsely inflated by the non-comparability of the courses). Furthermore, while neither measure tells us anything about the use of time (and hence the quality of learning), credits at least specify the quantity of the "average year."

It is important to note that when one talks about the percentage of total credits generated by 1 out of 131 course categories, the numbers do not appear to be large. Under an equal distribution, in fact, the mean percentage for any one course would be 1/131, or 0.76%. So if a particular course category generated 1.0% of all credits for any our our groups of students, that is a lot. Using a median of 0.5%, we discovered that for all high school graduates in both samples, 66 of our 131 courses generated nearly 90% of all credits (see Appendix B). In comparing courses for students on different tracks (Academic, General, and Vocational), we subsequently used 0.5% as the cut-off point for listing the courses that accounted for the vast bulk of time in students' actual curriculum (see Appendices C, D, and E).

B. Percentage of Students Taking a Course

The percentage of students who took a particular course involves a fairly simple calculation, for purposes of which those who took and failed the course were included.

Why ask the question and include those who failed? Because the data help in a variety of interpretation tasks. For example, the course categories "Math 1," "Math 2," "Math 3," and "Math 4" can hardly be said to be very specific. It is nearly impossible to determine what high schools tend to teach under those titles and to whom. But if we look at the changes in percentages of students who took any of these courses (failures included), changes in the percentage of credits generated by the courses (failures not included), failure rates, and other grade

* Course categories not wholly comparable.

point data in relationship to mean Grade Point Average for all courses, we can begin to understand which of these Math course titles are probably treated as remedial courses by many high schools. Thus, in assessing the overall degree to which remediation has increased as a portion of the high school curriculum, we would include one or more of these courses in the calculation.

After all, too, any discrepancy between percentage of credits generated and percentage of students taking a course has to be accounted for in some way. The failure rate is only one way. Yet another way involves the calculation of "mean credit values."

C. Mean Credit Value

We determined the "mean credit value" for a given course through a superficially simple ratio:

$$\frac{\text{number of credits generated by a course}}{\text{number of cases of students taking the course}}$$

The critical variable here is "cases." Given the way we set up our 131 course categories, there are many instances in which a student may take a "course" more than once. Physical Education is a clear example. So, as we have previously illustrated, is "Specialty Shop I." So again, for example, is "Literature: Special Topics." Each time a student takes and passes any course covered by one of those categories, he or she becomes a "case." So the number of cases is equal to or (usually) greater than the number of students taking any course.

The importance of this calculation cannot be underestimated, because it demonstrates the comparative time value of a particular course in the context of the entire secondary school experience of different groups of students. What it shows us is the average amount of time students actually spend on a subject against an ideal of 1.00.

That is, if 100 students took a single course in 100 different high schools, each of which had 60 minute class periods, 180 day school years, and awarded 1.0 credits for that course, the mean credit value would be 1.0.(7) But that isn't the way it works out when one looks at aggregate data. Some high schools run 45 minute class periods or may add special one hour workshops once a week for a course, and though they may assign 1.0 credits for the course, our credit assignment was different because we standardized time values.(8) Some high schools may require more total credits of students, so that the credit-value of any one course declines in relationship to the whole. And some students may take more credits than the maximum required for graduation, so that the credit-value of any one of their courses declines in relationship to the sum total of what they have done.(9) Since most of our 131 "courses" covered many titles with different amounts of credit assigned, the likelihood of any one calculation resulting in a mean credit value of 1.00 was very low.

Since credit values reflect time, and since time in school is finite, we have a zero-sum game. More of X means less of Y, and that is reflected in the changing mean credit values for courses. Since we feel that this

particular calculation reflects the traditional methods of assigning credit to courses in American secondary education, it is fair to compare such assignments--hence, comparative valuation in terms of student time--over a period of years.

Section B : Preliminary Findings

I. The Devaluation of Time in the Academic Curriculum

The most striking finding of the study is that, over the past 15 years, there seems to have been a systematic devaluation of academic (and some vocational) courses within the total quantity of schooling experienced by high school students. That is, the mean credit value of such courses is less than it once was--which means that students are spending comparatively less time on academic content.

This devaluation, it should be understood, is not a result of principals and school boards making conscious decisions to lower the amount of credit granted for academic courses, but may result from conscious decisions to raise the amount of credit for non-academic courses or to mandate wholly new courses in the secondary school curriculum within the same total amount of school time. Our data reflect student course taking behavior in the aggregate; and to repeat: the valuation of courses is a zero sum game. If students are receiving less credit--in the aggregate--for academic courses, they must be receiving more credit for something else. Another way of phrasing this phenomenon is that if, within the finite box of the 17 or 20 Carnegie Units an individual high school requires for graduation, a student is taking less of X, then he or she must be taking more of Y.

What is this "Y"? It consists of a group of courses we might describe under the rubrics of "Personal Service and Social Development." Appendix B is an accounting of the answers to all our questions for the total sample of students, i.e. all high school graduates, and for the 66 course categories that generated 0.5% of more of all credits. Of those 66 courses, 56 experienced a decline in mean credit value from 1964 to 1981. The ten (10) courses that demonstrate an increase in value are:

TABLE 3
Courses Increasing in Valuation: all Graduates

	Credit Values	
	I (Hopkins)	II (Ohio State)
Physical Education	.56	.60
Music Performance	.74	.78
Remedial English	.51	.71
Driver Education	.20	.35
Cooperative Education	1.40	1.62
Health & Physical Education	.59	.84
Distributive Education	.98	1.11
General Shop	.76	.83
Training for Marriage/Adulthood	.57	.58
Vocational Home Economics	.91	1.01

When one adds other courses (outside the top 66 in credit generation) that demonstrate increases in credit value, courses such as Career Guidance and Consumer Education, the tone of the list is rather clear.

In our analysis of the General Subject Fields into which the 131 "courses" could be regrouped, there were three types of Personal Service and Development Courses:

(1) Physical and Health Education, which are usually state-mandated requirements. Both states and local districts have evidently added to these requirements in recent years (particularly in Health Education), and the credit values for all such courses have increased.

(2) Basic Personal Service. We admit our category is a bit sloppy. It covers Typing 1, Music Performance (band, chorus, etc.) and Home Economics 1, all of which are traditional high school offerings common to large numbers of students on all tracks (Academic, General and Vocational).

(3) Life Skills, Hobbies, and Work Experience. In this group lie a variety of courses, some of which are not only mandated by some states but mandated with increased credit-value. Driver Education and Consumer Education (or "Personal Budgeting" as it is sometimes called--and it is definitely not Economics) are two prime examples of such courses.

With the exception of the second of these General Subject Field categories, credit values have risen more dramatically in this group of courses than anywhere else in the American secondary school curriculum.

Course values are driven by time. So what is most important to look at in this data is not the percentage of students who took a particular course as much as the time-value and percentage of credits generated by a course. What we are seeing, then, is that students are now spending more time in credit-bearing courses outside the traditional academic curricula and less time in courses in those curricula.

A secondary--but no less important--finding here is that mean credit values for courses differ according to students' program or "track." Our data not only confirm the persistence of tracking in American secondary schools (and more on that later), but also underscore the different values communicated to students who are on specific tracks. What is valued by both students and the track they have chosen (or on which they have been placed) is clearly communicated by those variations.

For example, the very nature (let alone worth) of mathematics is far different for the Vocational Track student than it is for the General track student. From Appendix J, "Track Comparisons : Mathematics Courses," we can extract the following to demonstrate the case:

TABLE 4
Mean Credit Values/Selected Math Courses/by Track

	I (Hopkins)			II (Ohio State)		
	ACA	GEN	VOC	ACA	GEN	VOC
Algebra I	1.02	.88	.93	.93	.89	.87
Geometry I	.98	.82	.91	.94	.87	.86
Algebra II	.96	.90	.94	.94	.85	.87
Advanced Math	.94	.6[illegible]	.71	.74	.74	.54
Business Math	.90	.8[illegible]	.96	.68	.77	.84
Applied Math	.79	.86	.95	.76	.71	.80

While 15 of the 18 sets of credit values in this table demonstrate decline, a comparison of those sets by track suggests a change in the function of mathematics in the school experience of Vocational students over the past 15 years. Whereas in the late 1960s, math loomed larger in the experience of the Vocational student than the General Track student, it no longer does. But Business Math and Applied Math still play a far more significant role for Vocational students than for anyone else. The upshot--with an exaggeration sufficient to make a point--mathematics for the Vocational student is Business Math and Applied Math.

At the same time that both Academic and Vocational track students are taking less math as a proportion of their total curriculum, General track students are taking slightly more, and the time value of their work in "traditional college preparatory" mathematics courses has increased. While the more appropriate place to discuss that seeming anomaly is in our consideration of "The Rise of the General Track" below, it is notable in the context of comparative time-values of schooling in mathematics because, unlike English or social studies, for example, mathematics is a wholly school-learned subject, and the impact of the quantity of schooling is very high in mathematics (Shaycroft, 1967; Schmidt, 1981).

II. Between Devaluation and Diffusion

A second way to look at the devaluation issue is through the generation of credit. This is also a zero sum game when considered in the aggregate, and is perhaps most familiar to higher education administrators. The game works somewhat as follows: the credits generated by any one course are a function of Value X Cases, i.e. x number of students receiving passing grades in courses with an average credit value of y. The sum of credits generated by all courses is 100%. The proportion of that 100% claimed by any one course can change as a function of value, cases, or both. Thus, for example, of the 10 courses listed in Table 3 as increasing in valuation between the late 1960s and the late 1970s, two (Physical Education and General Shop) generated a lower percentage of credits because the relative number of cases dropped.

Again, by this measure, students are now taking less of X and more of Y. Of our 66 courses generating 0.5% or more of the credits in either sample, 29 showed increases in percentage of total credits, 4 evidenced no change, and 30 declined (three course categories are not comparable).

The 29 courses demonstrating increases in percentage of total credits generated can be broken out by general course types as follows:

Table 5

	Percentage of Creds./All Graduates I (Hopkins)	II (Ohio State)
Academic Courses (8)		
General Social Studies	0.5	1.3
Lit.: Genre, Period, etc.	0.1	1.2
Lit.: Special Topics	0.3	0.9
Psychology	0.1	0.7
Advanced Writing	0.5	0.7
Geography	0.4	0.6
Geology	0.3	0.6
Sociology	0.2	0.5
Vocational Courses (9)		
Specialty Shop I	2.4	2.6
Specialty Shop II	1.4	1.6
Accounting	1.0	1.1
Cooperative Education	0.0	0.9
Clerical No Elsewhere Class.	0.8	0.9
Business I	0.5	0.7
Business Math	0.5	0.6
Vocational Home Econ.	0.3	0.5
Distributive Education	0.3	0.6
Remedial Courses (4)		
Remedial English	0.6	1.7
Writing Not Elsewhere Class.	0.0	0.7
Math 1*	1.6	1.7
Math 2*	0.4	0.6
Personal Service & Devel. (8)		
Driver Education	0.0	1.1
Work Experience	1.4	1.6
Health & Physical Ed.	0.0	0.8
Foods & Cooking	0.4	0.6
Training for Adulthood, etc.	0.0	0.5
Health Education	1.2	1.3
Typing 1*	2.6	2.8
Home Economics 1*	0.6	1.0

*While it is often difficult to tell what lies behind a course title, these courses do not easily fall into any of the other categories. Typing I and Home Ec I may be personal service or vocational; Math 1 and Math 2 in the OSU data are more likely remedial than anything else.

While the complexion of this list is slightly different from that of Table 3, the two hold one feature constant: academic courses are less likely to evidence increases in percentage of credits generated over the period in question. Particularly if one considers that two (2) of the academic courses showing increases ("Literature: Genre, Period, etc." and "Literature: Special Topics") are most probably ½ credit repackagings of what we used to call English 2, 3, or 4 (see Section IV below), then only six (6) of the courses at issue are academic.

The sum of all the data on the generation of credit in the 66 courses taken most frequently by all high school graduates in our sample is as follows:

	ACA	VOC	REMED	OTHER
Total Number of Courses:	37	15	4	10
Number increasing in % creds.	8	9	4	8
Number w/no change in % creds.	3	1	0	0
Number declining in % creds.	23	4	0	2
Not comparable	3	-	-	-

Another way of displaying these changes across all 131 course categories is indicated in Appendix F, in which the data is arranged by major curriculum components. The figures again make it perfectly clear that increases in the quantity of schooling over the past 15 years have occurred principally outside academic fields.

III. The Rise of the General Track

The impact of tracking on these trends is noticeable, and the most significant changes have occurred on the so-called "General Track," a very amorphous designation and an even more ambiguous reality. In our two samples the percentage of students on the "General Track" jumped from 12.0% in the late 1960s to 42.5% in the late 1970s! At the same time, the percentage of students on the Academic and Vocational tracks fell by roughly the same amount. Hence, what "General Track" students take for courses now seems to set the tone for our perceptions of the nature of the high school curriculum.

We admit a small problem with this observation because, as our description of the data bases and sampling indicated, track information was self-reported in both data sets. There is always a problem with self-reported track information just as (as we will note below) there is a problem with self-reported grades.

There are two basic disputes about track identification: (a) whether formal tracking exists at all in many American secondary schools and (b) whether we can accurately identify a particular student's track. The existing major research suggests that school administrators (principals and guidance counselors) and teachers have contrasting views of the extent and functions of tracking. Administrators are more likely to deny or downplay the very existence of tracking. But Coleman et al (1966) found that in 80% of the cases in which principals denied the existence of tracking, teachers disagreed.

On the other hand, Fetters (1975), for example, found a 60% agreement between student and administrative perceptions of track placement with respect to the General Track; 66% with respect to the Vocational Track, and 78% with respect to the Academic track. While we will return to this observation in a moment, here we must consider the validity of our assertion concerning the rise of the General track. One hint in our favor is provided by a set of unpublished tabulations by the National Center for Education Statistics based on NLS and HSB data covering the high school classes of 1972 and 1980:

Table 6: Comparative Track Identification

	NLS and HSB Data		National Commission Data	
	1972	1980	1969	1975-1981
Academic Track	42.9%	38.7%	48.8%	36.4%
General Track	32.9	36.9	12.0	42.5
Vocational Track	24.2	24.4	25.6	19.0
Missing Cases	--.-	--.-	13.6	2.1

While both sets of data demonstrate the same changing relationship between Academic and General tracks, the differences we noted were more spectacular. Why? The NLS and HSB samples include private school students, who are far more likely to be engaged in the equivalent of the Academic Track. But even if all the missing cases in the Hopkins sample (1969) turned out to be General Track students, the rise of the General Track would still be an extraordinary phenomenon.

What is particularly striking about the rise of the General Track, though, is an incongruity supported by other research on NLS and HSB samples: at the same time that students have moved into this vague area of mediocrity, more and more of them not only expect to go to college, but regard themselves as being better prepared for college! For example, in comparing the aspirations of the high school classes of 1972 (NLS) and 1980 (HSB), Wagenaar (1981) found a rise in the proportion of seniors anticipating going to graduate school from 13% to 21% and a rise in the proportion stating that they had the ability to compete in college from 42% to 48%. Those increases--particularly the latter--are not coming from students on the Academic track. Astin (1982) demonstrates a more complex--but not contradictory--pattern (even allowing for the fact that his subjects are already college freshmen).

The prima facie evidence of this data also contradicts Rosenbaum's contention (1980), based on NLS data, that there is some covert conspiracy out there which channels students into non-academic tracks as a way of "cooling them out" of the system. While we obviously did not perform sophisticated regression analyses (indeed, our data are too limited for that), we doubt Rosenbaum's conclusion when 50% of high school graduates enroll immediately in college (Burkheimer and Novak, 1981) and only 36% are on the Academic Track. (10) Nonetheless, it appears that an incredible gap has opened up between students' expectations and the realities of higher education. Many high school students--and their parents--seem extraordinarily naive concerning what it takes to prepare for and compete in postsecondary education. The

Commission heard eloquent testimony in this regard from both guidance counselors and students themselves. While this paper is an inappropriate place to expand on such observations, both the testimony and our transcript data suggest that a major overhaul of the processes by which expectations are expressed to students and their parents is in order.

Jencks (1972) observed that students' self-reported track identification reflects their postsecondary plans or status, but we do not see that to be the case any more. Where we agree with Jencks is in his observation that the General Track possesses the weakest paradigm for high school students. Indeed, Fetters' observation (cited above) backs up that contention: of students on the three tracks, General Track students are least likely to be able to identify their own track placement.

It may seem paradoxical to identify the characteristics of a weak paradigm, but our data may be helpful in this regard. After all, what is in a track? Whether self-reported or classified by school, the "track" represents a set of broad parameters within which students take courses with varying degrees of intensity. Some have called the track a "modal pattern." Campbell, Orth, and Seitz (1981), for example, demonstrated a spectrum of <u>patterns</u> of involvement in vocational curricula ranging from those students who used the vocational track to pursue a specialty (analogous to a college major) to those who dropped in and out of vocational courses for personal improvement. The former are clearly "Vocational Track" students; the latter probably are not. In between such extremes of concentration are students who may be classified as vocational, but who treat vocational courses as if they were a Chinese menu. So our aggregate data, which show vocational courses as generating approximately 25% of the credits for Vocational Track graduates, mask some significant internal dynamics.

The theory of intensity of curricular participation, though, extends to Academic and General Track students as well. And to understand both that phenomenon and the "weakness" of the General Track paradigm, we might look at selected data from the Ohio State sample (1975-1981), and, in the process, think of what dominates the high school curriculum of the General Track student.

The following list highlights those courses in which there is a notable difference between Academic and General Track students. The data are reported in terms of both the percentage of students taking a course (participation) and the percentage of credits generated (time/intensity). We chose the Academic Track with which to compare the General Track because the Academic is regarded as a paradigm of preparation for postsecondary education and because it appears that a <u>minimum</u> of one out of four General Track students are going on to college.

Table 7:

	Academic Track		General Track	
	% Creds.	% Studs.	% Creds.	% Studs
U.S. Government	1.7	48	2.0	53
World History	2.1	47	1.7	39
General Social Studies	1.1	20	1.5	24
Geography	0.5	14	0.7	17
Psychology	0.9	30	0.7	24
Remedial English	1.5	25	1.9	31
Advanced Writing	0.9	20	0.6	14
Writing NEC	0.9	28	0.6	19
Literature: Genre, Period	1.4	34	1.2	30
Mass Media	0.2	8	0.4	13
General Art	0.9	23	1.3	29
Art 2+	0.4	6	0.6	9
Crafts 2+	0.3	8	0.6	14
Music Performance	4.3	40	3.1	29
Specialty Shop I	1.5	24	2.9	35
Specialty Shop II	0.5	8	1.5	17
Advanced Specialty Shop	0.3	6	0.6	9
General Shop	0.3	8	0.6	14
Cooperative Education	0.3	3	0.7	8
Shop NEC	0.2	4	0.5	8
Home Economics 1	0.6	15	1.2	25
Specialty Home Economics	0.4	10	1.0	19
General Science	1.5	32	2.1	42
Biology 1	4.1	86	3.5	73
Biology 2	1.1	24	0.6	14
Chemistry 1	2.8	61	0.9	19
Foods & Cooking (Non-Vocational)	0.4	11	0.7	19
Training for Adulthood, etc.	0.4	12	0.7	22
Personal Budgeting/Consumer Ed.	0.2	8	0.4	14
Infant and Child Care (Non-Voc)	0.2	6	0.4	11
Work Experience	0.9	18	2.0	27
Business I	0.4	10	0.8	19
Clerical NEC	0.3	6	1.0	17
Distributive Education	0.3	4	0.7	11
Geometry 1	3.3	72	1.4	32
Algebra 2	2.6	56	0.9	19
Math 1	1.0	21	2.2	43
Business Math	0.2	6	0.9	21

Based on that selected list, what can we say of the General Track students' experience of the high school curriculum and preparation for college? Appendix F demonstrates that General Track students spend over 40% of their high school time outside the traditional academic curriculum (compared with 30% for Academic Track students). Our data indicate that this time is dominated more by Personal Service and Development Courses, Home Economics, and Arts and Crafts that it is for students on either Academic or Vocational Tracks. And even though General Track students take 15% of their credits in vocational courses, there are no clear patterns to their participation in vocational curricula. That is, unlike the case of Vocational Track students, there is no evidence of intensity of taking vocational courses in any one area, e.g. Office Occupations or Industrial Arts.

Table 7 provides some of the flavor of these trends, but more importantly demonstrates that within the academic curriculum, remedial and "generalized" courses (e.g. General Social Studies, General Art, and General Science) seem to set the tone for the academic content of the General Track student's experience. These courses account for 10% of the total credits and 17% of the academic course credits received by General Track graduates. When one puts those figures together with the 40% of time spent outside the academic curriculum, one can characterize the curriculum of the General Track student as a combination of survey, remedial and personal personal service courses, i.e. a wasteland.

Echternacht's findings (1976) using NLS data more than confirm the effects one might expect of such a wasteland: General Track students are more alienated toward school and less focused on their aspirations than either Academic or Vocational Track students.

Assuming the General Track continues to dominate secondary school curriculum participation, one can unfortunately expect that characterization to remain with us.

IV. Diffusion of the Curriculum and the College Connection

One common complaint concerning the recent evolution of the high school curriculum is that it has become rife with "electives." But that perception is not quite accurate. Rather, it appears as if the high school curriculum has become diffused and fragmented, a mirror image of the proliferation of courses and degrees in colleges and of the smorgasbord format that Blackburn demonstrates came to dominate college General Education requirements in the period between the two high school transcript samples.

As we mentioned at the outset, it is difficult--if not impossible--to establish a causal connection between changes in college exit requirements and the patterns of change in high school curriculum and course-taking revealed in our data. But on the issue of diffusion, we have some intriguing parallels, and we might profit at this point from a consideration of Blackburn's findings concerning changes in exit requirements at a sample of 271 American community colleges, colleges, and universities between 1967 and 1974 (see Appendix L).

We can extract seven (7) major findings of the Blackburn study that bear on our analysis of the diffusion issue:

1) Only 12 of the 271 postsecondary institutions did not change their exit requirements during the period at issue. The pervasiveness of change at one level of our education system was beyond doubt.

2) In 15 of the 17 categories of institutions in Blackburn's sample, the General Education (basic Liberal Arts) requirement as a percentage of credits required for graduation fell by significant amounts (see Appendix M). The two exceptions--and they are important ones--were public research universities of high selectivity and public two-year colleges. (11)

3) Within General Education requirements, there was a distinct shift away from prescribed courses toward both distribution and elective courses. In other words, instead of having to take X,Y, and Z as specific courses, college students could choose either among categories encompassing considerable numbers of courses in a Chinese menu fashion (distribution) or among virtually any course offered in the lower division curriculum (electives). Changes in this course-type mix were as follows: (12)

Table 8
Changes in the Structure of College General Education Requirements, 1967-1974

	% of Instits. Decreasing Requirements	Ave. % Decrease In Creds.	% of Instits. Increasing Requirements	Ave. % Increase In Creds
Two Year Colls.				
Prescribed Courses	75%	26%	10%	24%
Distribution Formula	33	26	59	22
Electives	13	28	28	45
Four Year Colls.				
Prescribed Courses	82	30	12	14
Distribution Formula	30	34	61	28
Electives	9	15	34	50

From this table it is appropriate to conclude that the Distribution mode of structuring General Education requirements in colleges became dominant by the mid-1970s. (13)

4) With reference to specific graduation requirements, there were significant declines in the percentages of colleges requiring English composition, foreign languages, and mathematics. In fact, by 1974, 79% of the four-year colleges and universities and 84% of the two-year colleges in Blackburn's sample had no

mathematics requirements whatsoever!!! In contrast, 54% of the four year colleges in the sample still required foreign language for graduation (down from 72% in 1967). (14)

5) In all categories of four year colleges, the percentage of credits required by a student's major remained stable while the percentage of credits in the category of general electives rose.

6) However, students used electives to augment their majors, either by taking more courses than required in the major department, or (more likely, as Blackburn's transcript analysis shows) within the academic division of the college in which their major was located (e.g. Natural Sciences for a Biology major). The result was an increase in specialization.

7) Two year colleges changed the least in the above respects, principally because--in terms of allocated time--they have less room to change.

This summary hardly does justice to the work of Blackburn and his colleagues, or to its implications for faculty, students, and administration in our colleges. However, our purposes in using its data and conclusions involve relationships between levels of education and the structure of expectations that filters through the system. If Blackburn's conclusions and data suggest anything to us, it is that what filtered through the system in the late 1960s and early 1970s was a model of diffusion, accompanied by proliferation of courses (an inevitable consequence of demand-side course-taking behavior of college students intent on specialization in an environment that encourages it).

On the high school level, the process of diffusion and proliferation can best be observed within large sub-categories of curricula like Language Arts or Social Studies, though less so in mathematics and sciences (unlike the case of the colleges, where, despite the strengths of the knowledge paradigms in science and technology, courses tend to proliferate as much as in other fields). Students may be receiving the same content, but under different labels--though it is as difficult to determine much about specific content from our data as it is from high school catalogues. Who is to say that what was taught of writing and literature in a year-long, 1 credit course called "English 2" in 1967 is not being taught now in two, separate semester courses with titles like "Introduction to Fiction" or "19th Century American Literature"?

There are track distinctions in this matter; and it may be well to comment upon both them and the process of diffusion in Language Arts and Social Studies at this point. Our references are Appendices G and H.

Language Arts:

Despite requirements for English courses in nearly all states, the percentage of credits generated by all secondary school language arts courses has declined for students of all tracks, with nearly 9% declines for students on the General and Vocational Tracks. To some extent, this has occurred as a by-product of the diffusion tendency.

The diffusion seems to occur most noticeably after the 10th grade. That is, the percentage of students taking the traditional "English 1-2-3-4" sequence drops dramatically from English 2 to English 3 (65% to 54%), and across all tracks, even while mean credit values for those courses hold fairly steady. As previously noted, what replaces these "unified" courses are essentially literature courses organized by topic, genre, or period--exactly the way a college English department tends to present its curriculum. Academic and General Track students seem to take these ½ credit courses to a greater extent than do Vocational Track students who, in turn, take a Business English course with a higher credit weighting.

A second major theme in the experience of language arts at the secondary school level appears to be a by-product of ability grouping irrespective of track, namely the simultaneous growth of remedial and advanced English courses. This bi-modal pattern has not been remarked on in the literature, and is perhaps worth a brief comment.

In our course categorization scheme, "Remedial English" covers those course titles that are easily identifiable as remedial. However, "English Grammar" is most probably a remedial course, and "Writing, Not Elsewhere Classified" covers a good many course titles on the order of "Writing Workshop," which could easily be supplementary remedial courses. In fact, given the generally lower Grade Point Averages of students on all tracks in "Writing, NEC," one strongly suspects that the courses in that category are remedial.

Putting the three together, we find an increase of 866% (!!!) in the credits generated in those remedial English courses by Academic Track students over the period covered by the data; 200% for General Track Students; and 150% for Vocational Track Students. The three remedial courses now account for 2.5% of all credits of all high school graduates.

At the same time, however, "Advanced Writing" (which covers Journalism), "Advanced Speech" (which covers debate and drama), and "Advanced English" evidence considerable gains--across all tracks--in credits generated and percentages of students taking the courses. But all three "courses" show considerably lower mean credit values, indicating that they have become shorter pieces of the high school experience. Whether these pieces are fragmented depends on the recommended sequence of English courses for advanced students in a given high school.

Social Studies

Of all the major areas of the academic secondary school curriculum, social studies has suffered both the greatest drop in enrollments over the period covered by our samples, and, more importantly, the greatest decline in credit generation.

The most severe decline has occurred among General Track students, who were taking 18.6% less social studies in the late 1970s than they were 10 years earlier, though they were still taking more social studies credits (15.3% of all their credits) than were students on any other track.

The course-taking patterns of all track groups in social studies illustrate the diffusion phenomenon, but the tendency is greatest among Academic Track students. For example, at the same time that enrollments and credit generation in history have fallen among these students, they have gravitated to what appear to be a new set of ½ credit courses in Psychology, Economics, and Sociology to a far greater extent than students on the other two tracks. One can speculate that the high schools offering such courses and the students who take them think they are anticipating college social science distribution requirements, as introductory courses in these disciplines are fairly standard options from which college students must choose under distribution formulas.

Whether the high school student can obtain an adequate introduction to these subjects, however, is another matter. Certainly, the experimental aspects of psychology which are emphasized in most introductory college courses cannot be adequately anticipated in a ½ unit high school course. A slightly different case obtains in economics, which, as taught in most colleges, requires a capacity for abstract thought--necessary to understand models--that high school students usually have not developed. (15)

Our data on social studies explode a popular misperception that the high school curriculum has become filled with "social problems" courses. We insisted on separating out the sometimes "contentious" categories of "Social Problems," "Black History," etc. instead of lumping them under the category, "Social Studies: Not Elsewhere Classified." The data adequately demonstrate that these courses do not draw more than 5% of all secondary school graduates and do not generate more than a handful of credits.

One of the more traditional courses in the secondary school social studies curriculum--U.S. Government (or "Civics")-- warrants additional comment. The devaluation of "U.S. Government" for students on all tracks is very great, indeed, and is difficult to explain. Perhaps the rise in state-mandated state government and history courses accounts for some of the diffusion here, that is, for some of the shift from what would have been a unified, 1 credit Civics course to two or more courses of less credit value.

Summary: Repackaging and the Meaning of the Diploma

What may be going behind those figures is a combination of substitution and packaging. As consumers of education, we have badgered the high schools to explain what they mean by "English 1" or "Math 3." By "we" is meant parents, employers, legislators, college admissions officers and all others who pass judgment on the credentials presented by students. In response, the high schools repackaged curriculum with more discrete labels and substituted those labelled packages as blocks of time for other blocks of time.

In the process, high school catalogues came to resemble college and community college catalogues, both in substance and tone (content and expectations). The distribution formulas that Blackburn et al demonstrated as dominant organizing principles of college General

Education requirements by 1974 inevitably result in diffusion and fragmentation as departments struggle to maintain a share of student credit hours sufficient to support their faculty lines. And as the trend toward distribution formulas was greatest in the public colleges (and public high schools are more likely to be influenced by, let us say, the state university than any other postsecondary institution), it may be no wonder that the high schools repackaged themselves accordingly.

One result of this repackaging is a tremendous variance and volatility in student transcripts from given high schools over the roughly 15 years covered by our data. The real bottom line of that variance and volatility, though, is that if--once upon a time--we could tell little about the meaning of a high school diploma, paradoxically we can tell even less today.

That, of course, hardly suggests that we return to some mythical golden age of English 1 and Math 3. In fact, despite the negative assessment implied by our discussion of this issue, repackaging of certain segments of the academic curriculum might be beneficial to some students. In the social sciences, those who are not going on to college would otherwise never be exposed to basic concepts of psychology, sociology, and economics. And in language arts, a course in "Introduction to Poetry" or "Detective Fiction" can provide a great deal of focus for the teaching of critical thinking, careful reading, and writing--and may be more effective in doing so than an undifferentiated "English 3." That, of course, all depends on the quality of instruction, a topic upon which this study does not touch.

V. Achievement and Assessment: Some Questions about Grade Inflation

Most existing studies and perceptions of high school student academic performance have relied on self-reported grades. Our grade information, on the other hand, comes directly from transcripts. Both Hopkins and Ohio State translated letter grades on a standard scale of 0.0 to 4.0 (for ungraded courses, students who received a "Pass" were credited with a 2.5 in our data).

Comparing this data on Academic Track students to that presented to the Commission by the College Board on SAT-takers, it swiftly becomes obvious that students inflate their grades in self-reports: for the period 1975-1981, the mean Grade Point Average for Academic Track students in the Ohio State transcript sample was 2.83; for SAT-takers reporting their own grades, it was 3.09. That is a fairly substantial difference; and it suggests that our perceptions of the absolute level of student grades are probably inflated.

But in a very broad sense, the popular perception concerning grade inflation itself is nonetheless confirmed by the transcript data. That is to say, judging by changes in mean GPA and percentages of As and Bs awarded by course, grades have risen at the same time that other

measures external to the data--SAT and CEEB Achievement Test scores--have declined.(16)

But there is a bi-modal phenomenon that is also observable in the data, namely a simultaneous increase in the percentage of students receiving Ds and Fs in academic courses. The data in Appendices N and O, for example, evidence this phenomenon for Academic Track students in 9 out of 14 Language Arts courses subject to meaningful comparisons and in 8 out of 12 Social Studies courses. And whereas less than 4% of the College Board SAT-takers for the years 1975-1981 reported mean GPAs of less than 2.0, nearly 10% of the grades for that period in our sample of Academic Track students were Ds and Fs. While these are not exactly comparable pieces of information, in combination they suggest bi-modalism.

We admit that our data do not fully reflect the practice of giving additional weight to college preparatory or (certainly) Advanced Placement course grades (and hence, relatively less weight to grades in other courses offered principally to Vocational and General Track students). But no one has ever demonstrated the extent of grade weighting practices in U.S. secondary schools; and we do not think our data have distorted the case.

As Rosenbaum (1978) pointed out, the assumption behind those practices is that it is easier to get an "A" in a Vocational or General Track course than in a college preparatory course. His case study of "Grayson High School," however, indicated that precisely the opposite is true, i.e. grades are higher in college preparatory courses. Our data support that conclusion. But while he concluded that "this suggests that teachers have already adjusted for the easier requirements they apply in non-college tracks when they give out grades," we see a slightly more complex case, as evidenced in the bi-modalism of the grading patterns referred to above.

Inflation usually means that you purchase the same product for more or buy a lower quality product for the same price. We cannot really tell from this data if that is actually the case--though the tests seem to suggest that it is. We could make a better case if we looked at the grades of students by test-score levels; but that is impossible with the information we have.

In many cases, it is difficult to judge what constitutes a significant rate of inflation, and in others, there may be alternative explanations as to why inflation occurs.

For example, take the typical mathematics sequence: Algebra I, Geometry I, and Algebra II. As the table below demonstrates the rate of inflation seems to increase with each step in the sequence. Does that possibly reflect the fact that the less mathematically-talented students tend to drop out of the sequence, leaving the better students in the courses? It could. Or, to follow Rosenbaum's hypothesis, it may be that teachers perceive each course in the sequence as more of a college preparatory course, hence hand out higher grades.

Table 9

	Mean GPA		% Change	% of As & Bs	
	I	II		I	II
Algebra I	2.16	2.24	3.7%	36	46
Geometry I	2.21	2.38	7.7%	34	51
Algebra II	2.12	2.47	16.5%	36	61

Likewise, in the case of Foreign Languages. One is tempted to say that where there has been massive decline in enrollments in essentially elective curricula, grades rise because teachers are trying to hold onto students. Indeed, there is a significant difference in the rate of inflation between Spanish I (negligible), on the one hand, and French 1, German 1, and Latin 1, on the other--and partly because Spanish has experienced only a modest enrollment decline in comparison with other academic courses. A contrary argument, of course, is that by the 2nd or 3rd level language course--and in a field in which proficiency largely determines promotion--you have whittled down the class to the six most linguistically talented or persistent students in the school, therefore the grades will be higher.

For a third example, let us examine the 12 courses showing increases of 10% or more in mean GPA:

Table 10

	% Ch./GPA	% Ch./As & Bs
Cooperative Education	33.7%	76.7%
Accounting	19.2	56.4
Intermediate Algebra	16.5	69.4
Latin 1	16.0	26.9
Advanced Typing	15.4	51.3
Psychology	12.4	45.0
Advanced Mathematics	12.2	(9.1)
Geography	11.7	41.7
Business Math	11.7	34.5
Typing 1	11.4	41.0
Writing NEC	11.1	3.6
General Science	10.7	50.0

Seven of these are academic courses, and provide a hint (confirmed by the rest of the data on courses for which comparisons are meaningful) that grades in mathematics (and, to a lesser extent, science and foreign language courses) rose at a faster rate than those in any other major course groupings. In addition, seven (7) of the above courses are among the 29 showing increases in credit generation, but they are not--generally speaking--the kind of courses on which public perception tends to focus when it thinks of grade inflation and curricular "flabbiness."

In fact, consider: of the 66 courses that generated 0.5% or more of the credits for all high school graduates in our two samples, 19 evidence either stable or declining mean GPAs. Those 19 include Driver Education, Training for Adulthood, Work Experience, Health Education, the new Health/Physical Education combination course, and such courses associated with curricular diffusion as: Sociology, Literature: Genre, and Literature: Special Topics. The point of all this is that while the perception of grade inflation--and hence, a failure in our continuous assessment system--is generally accurate, the location, sources and extent of that inflation do not fit easy assumptions.

Track distinctions show up in this context as well, and the issue becomes even more complex. First, our findings agree with those of Echternacht (1976) that the performance of General Track students--as measured by mean Grade Point Averages--is the lowest of students on the three tracks--in 40 out of 60 academic courses for which figures are comparable. Only in the Sciences are General Track Students not at the bottom of the performance barrel.

Second, even at the risk of over-generalization, it is probably safe to say that the grade inflation rate has been most pronounced for students on the General Track--precisely the track that has evidenced the greatest degree of growth. But this conclusion varies by field of curriculum. It certainly holds up in Mathematics (see Appendix J), but does not hold in that area we have called "Personal Service and Development."

These findings are particularly significant in relation to the college attendance rates of General Track students. The College Board reported to the Commission that between 1965 and 1980, the coefficient of correlation that indicates the value of high school grades as a predictor of success in college declined from .62 to a range of .46 to .51. Given both the dominant curriculum and performance indicators in our data, we conclude that that correlation may still be greatly exaggerated for General Track Students. The implication is that college admissions policies should be wary of weighting high school Grade Point Averages very heavily, but should look instead both to the quality of the curriculum taken by the student and to performance measures on a combination of SATs and College Board achievement tests (which, in colleges that use both measures, accounts for 60% of the prediction of academic success in higher education). (17)

VI. Loose Ends, Suggestions for Further Work, and Conclusions

It should be evident from both the discussion above and from the Appendices that the Commission has gathered a rich body of data that this study only begins to explore. In the hands of experienced educational researchers and statisticians (which this author is not), it may yield a richer understanding.

We granted from the outset that this is not a textbook case, that we stumbled across two remarkable sets of information that did not exactly match, but that could provide some historical perspective that will not available to students of American education again--at least not without

tremendous cost. The reanalysis of the data at issue was, quite frankly, very cheap.

Though we considered the possibilities, we did not perform significance tests, regression analyses or other statistical procedures on the data. Those statisticians with whom we worked did not feel that the pay-offs would be worth the cost. In fact, it was persuasively argued that in cases of archival data where differences appear to be as substantial and consistent as what we have reported above, significance tests would do little more than satisfy a technical curiosity.

Given the ways in which both Hopkins and Ohio State have set up their data files for this project, it may be possible to address some other questions--both essentials and curiosities. The following cameos of such issues indicate both the possibilities and limitations of further research using these data bases.

A. Effects of School Type, Size, and Policies

This is a critical set of issues if one is concerned with the apparent decline in the quantity of academic coursework. Schmidt (1981) has demonstrated a direct relationship between the quantity of coursework in different subjects to student achievement (measured by basic cognitive tests), and has provided strong indication that the degree of impact differs by school type and size. (18) While we do not possess test scores for both data sets, one should be able to generate enough information to bring the institutional diversity issue to bear on student course-taking patterns. That comparison, of course, cannot account for the crucial effects of school district policies or for the influence of district resources on course offerings, or even for the inertia of students who fail to take advantage of what a high school might offer. So our data bases will advance this inquiry only so far.

B. The 12th Grade Blues

The data sets would lend themselves very well to an exploration of divergences in course-taking between the 12th grade and the earlier portions of the secondary school experience. Do students really "waste" the 12th year, as current educational folk wisdom would have it? Are there track distinctions in this regard (we strongly suspect so)? Have the uses of the 12th year by students changed since the late 1960s? A cursory examination of our grade-by-grade analyses of the data suggests that the folk wisdom is largely accurate, that track distinctions are notable, but that the "12th grade blues" is not a new phenomenon.

C. Course Sequences and Patterns

We approached our material using the course as the basic unit. It is possible in a limited way (limited by the size of the Ohio State sample) to start with the student instead. One might create a series of models--course sequences or patterns--and ask how commonplace they are among different groups of students (or, if there were not enough cases to make meaningful distinctions by track, among all students). The difficulty here, of course, lies in arriving at consensus on the models or patterns. Our data cannot assist in that regard.

D. A Curricular Theory of Attrition

As the reader may recall, the data sets include two groups of students we did not subject to our analysis : "unreported track" students in the Hopkins sample and "incomplete transcript" students in the Ohio State sample. The latter group probably contains a good many drop-outs. Using the Ohio State data, then, could one compare the course-taking patterns of graduates and likely drop-outs to see what kind and intensity of curricular participation is most likely to lead to attrition? With a little sweat from both brains and computers, one ought to be able to answer that question. Other questions would take us well beyond the existing data.

But there is one set of issues touched upon by this study that should be pursued, namely, the "College Connection." There are two dimensions to this topic. The first requires a good deal of qualitative research that would seek to describe the extent to which those who decide the shape of the secondary school curriculum or who are responsible for student advisement are influenced by or conscious of postsecondary models, practices, and developments. Principals, teachers, counselors and others may also refer to their own college experience in making curricular decisions on the secondary level, but the only way to find out whether that is true is to conduct a number of interviews with a convincing sample of these individuals.

The second dimension of the topic involves the outcomes and enduring effects of education. The considerable work of the Commission on higher education resulted in a tentatively grim assessment of the current status of standards--for the allocation of time, content of disciplines, level of academic performance expected of students, cooperation with schools, etc.--in America's 3300 community colleges, colleges, and universities. (19) But we don't really know enough to figure out what goes wrong, why, and how the situation can be improved.

It struck us in the course of this project that the first step in building an appropriate knowledge base would be to up-date the type of work in which Blackburn et al previously engaged. While that would be both a more complex and very expensive proposition, the imperative for doing so is dictated, in part, by the fact that scores on standardized tests taken by college graduates indicate declines in achievement greater than those for high school graduates!! (20)

The bottom line of assessing the effectiveness of any educational institution or program, after all, lies in the achievement and performance of students, particularly that achievement which exceeds expectations. The Commission and its staff found it odd--to say the least--that large scale research on growth and change in college students has focused on every conceivable topic other than their academic learning, and that the nation has never undertaken a comprehensive pulse reading of college student learning analogous to the National Assessment of Educational Progress (NAEP). If measurements of educational progress come to a screeching halt when people reach the age of 17, we give the false impression--incommensurate with the goals of a learning society--that education and learning stop at that age as well.

With the High School and Beyond study still in its early stages, we have the chance to extend our measurements of academic learning into the postsecondary years. We also have the opportunity to determine the effects of particular secondary school programs on college student attainment. What happens to General Track students? What types of colleges do they attend? What kind of programs do they pursue in college? How do they perform in comparison to Academic Track students? Answers to such questions may go a long way in assisting secondary school curriculum designers and counselors map a productive road to learning for these students.

In the course of its work, the Commission came to understand American education as a continuum that extends far beyond the formal system of schools and colleges. But within that formal system, we can reasonably speculate that both standards and requirements are heavily influenced by the "highest level." Speculation, however, is no substitute for knowledge; and there is no question that we need to describe the patterns and quality of communication between levels of the system better than we have to date, and need to understand more fully how the behavior of postsecondary institutions influences secondary schools and their students.

NOTES

1 (page 1). During this period, the Commission conducted six public hearings, four public seminars and symposia, and four full meetings at which substantive issues were considered. It received testimony at these public events from over 300 individuals. In addition, it logged nearly 50 commissioned papers, over 300 profiles of notable programs and promising approaches in American education, and over 500 other documents and statements sent in by associations, schools and colleges, and interested citizens. It sponsored both this study and a survey of academic requirements and achievement in school districts (the latter was conducted by the National Center for Education Statistics). This collection of materials, in this assessment of this author, is truly a national resource.

2 (page 2). With a national ratio of one guidance counselor for every 320 high school students, it is unlikely that advisement has been very consistent. At its June 23, 1982 public hearing on "College Admissions and the Transition to Postsecondary Education," the Commission received a number of suggestions for altering this inadequacy--which is even more pronounced at the college level.

3 (page 2). Evaluation Technologies. A Classification of Secondary School Courses (Arlington, Va., 1982). The titles were assembled by a panel of educators through a study of high school catalogues, and were classified and described in a manner analogous to that previously used in Gerald S. Malitz, A Classification of Instructional Programs (Washington, D.C.: National Center for Education Statistics, 1981). The author did not find the Evaluation Technologies scheme to be compelling.

4 (page 4). See Alexander and Cook (1980), Fennessey et al (1980), Alexander and McDill (1976), and Alexander, Cook, and McDill (1978).

5 (page 6). Seitz (1982) describes all the major decisions and coding principles that went into the reanalysis of the Ohio State data for this project.

6 (page 9). When, on behalf of the Commission, the National Center for Education Statistics (NCES) asked 571 school districts which policies were most important to improving academic achievement, 66% (and 90% of urban districts) rated increased daily attendance as a highly important category. The percentages were greater by far than for any other policy option, indicating that schools estimate that they are losing a tremendous amount of instructional time through absenteeism.

7 (page 12). Campbell, Orth and Seitz (1981) defined it precisely that way; but the fast response survey of 571 school districts conducted for the Commission by NCES assumed only 40 minute classes. Since 40 minutes in the absolute minimum legal standard in the country (and only five states set the minimum class period at 40 minutes), we prefer Campbell's assumption.

8 (page 12). For example, of the high schools included in the Hopkins data, one worked with a 10 credit/course system and another with a 2 credit/course base. Credits on transcripts from these high schools had

to be converted first to a 1.0 scale--even before regularization.

9 (page 12). The NCES survey for the Commission revealed that while the average number of credits required for secondary school graduation is 19.8, the average number of credits actually earned by secondary school graduates is 21.6.

10 (page 18). It is appropriate to add here that it is not our intention to analyze the sometimes fine line between tracking and ability grouping. In the absence of test data on both our samples, it is impossible to determine whether students are steered into courses (and perhaps tracks) according to someone's perception of their abilities. The only way to research such a hypothesis, we think, would be through detailed case studies of a convincing sample of high schools.

11 (page 22). Given the leadership role of "flagship" state universities and the dramatic expansion of the public community college system in the 1960s and 1970s, one would expect that public high schools would be more sensitive to curricular changes in those categories of institutions than any others. Evidently, though, that wasn't the case; and our findings are counter-intuitive in light of Blackburn's data.

12 (page 22). Table 8 is a synthesis of tables 9,10, and 11 in Blackburn, et al, pp. 14-15.

13 (page 22). Blackburn, et al also concluded that those colleges which offered a General Education curriculum dominated by distribution systems in 1967 moved toward elective systems by 1974.

14 (page 23). The percentage for foreign language requirements seems high, even for 1974. The Commission received testimony from a number of sources demonstrating that only 20% of all postsecondary institutions require foreign language courses for either admission or graduation.

15 (page 25). There is a question as to what many high schools classify as "economics." Looking through the myriad of titles that were subsumed under that category, one can reasonably conclude that some of the courses lean heavily in the direction of "consumer education," and provide basic information about balancing checkbooks, interest rates, unit pricing, etc. Others are state-mandated "free enterprise system" courses, and it is difficult to know exactly what they cover. A significant exception may be the "Bank Ed" curriculum in California, the most powerful component of which seems to be a supplement to junior high school courses in social studies, mathematics, and English.

16 (page 26). While there is no question from the public data that SAT scores have declined over the period in question, the interpretation of long-term trends in College Board achievement test scores is more difficult. The data supplied to the Commission by ETS superficially evidence a remarkable degree of stability; but a close year-by-year examination of achievement test scores lead us to surmise that some re-norming had occurred. When querried, spokespersons at ETS confirmed that the scores on achievement tests are regularly re-scaled to the SAT. It is important to note that the principal clients of the testing

services are college admissions officers, who are interested in the comparability of scores in any one year, not in long-term trends. It is for that reason that achievement test scores are scaled to the SAT. While the long-term effects of many re-scalings have yet to be determined, we thus strongly suspect that as SAT scores have declined, so have achievement test scores.

17 (page 29). The information cited in this paragraph was presented to the Commission by John Vaccaro, Associate Director of the Midwestern Regional Office of the College Board, at a public hearing in Chicago on June 23, 1982 on the subject of "College Admissions and the Transition to Postsecondary Education."

18 (page 30). Jencks and Brown (1975), on the other hand, argue that test score changes between grades 9 and 12 have "no effect on individual life chances." (310)

19 (page 31). This assessment was provided by the author in a paper to the 1983 Annual Conference of the American Association for Higher Education, "Getting Up Off the Floor : Standards and Realities in Higher Education." As an assessment, it does not pretend to reflect the views of the National Institute of Education, the National Commission on Excellence in Education, or any of the Commissioners.

20 (page 31). While one is wary of presenting the judgments of test data in both selective and raw form, consider the following: (1) there has been a 16% decline in scores on the Verbal section of the Graduate Record Examination (taken by college students applying to graduate school), compared with a 14% decline on the SAT/Verbal test; (2) scores on the Graduate Record achievement tests in such subjects as English and history have declined approximately 15%, while scores in the same fields on the College Board achievement tests for high school seniors have remained relatively stable (though, as we pointed out in Note 16 above, there are problems with interpretation of the high school scores); (3) scores on Graduate Record achievement tests in psychology and political science are down while scores on achievement tests in the sciences have remained fairly stable; and (4) only the Law School Admissions Test (LSAT) and the Graduate Record achievement test in mathematics demonstrate unequivocally rising scores during the period in question.

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APPENDICES

The following abbreviations are used throughout the appendices:

I	Hopkins Sample, High School Class of 1969
II	Ohio State Sample, High School Classes of 1975-198
A	Academic Track Students
G	General Track Students
V	Vocational Track Students
GPA	Grade Point Average
NEC	Not Elsewhere Classified

Readers should also note the following numerical shorthand:

Under "Mean Credit Value," 100 should be understood as 1.00 credits, 86 should be understood as .86 credits, etc.

Under "Mean GPA," 250 should be understood as 2.50 on a scale of 0.00 to 4.00.

COURSE CATEGORIES USED IN STUDY OF HIGH SCHOOL TRANSCRIPTS

The following categories were selected from those previously coded in both the Hopkins and Ohio State data which, in turn, had selected from a variety of titles actually used on high school transcripts. In the process of creating the categories, we established a threshold N of 100, that is, 100 students from both samples taking at least one course in the category over their high school careers. If the N was less than 100, the course was either combined with a logically-related category or placed under the "Not Elsewhere Classified" notion. There were very few exceptions to this threshold rule.

The courses have been grouped below according to the categories used in our analysis. Some of them could be placed in more than one category, depending on actual content and/or how a student used the course. Since our data tell us nothing about actual content or student use, our judgment of marginal or ambiguous cases is based on both the analysis and the consensus descriptions of the course titles appearing in A Classification of Secondary School Courses (Arlington, Va.: Evaluation Technologies, 1982).

A. Language Arts

English Grammar
Remedial (Reading, English, Basic Language Arts, etc.)
English 1
English 2
English 3
English 4
Advanced Writing (includes journalism)
Advanced Reading (includes speed-reading)
Advanced English
Literature: Genre, Period
Literature: Special Topic
Speech 1
Debate, Drama
Mass Media
Business English
English as a Second Language
Writing not Elsewhere Classified (includes writing workshops)
English not Elsewhere Classified

B. Social Studies

General Social Studies
Economics
Geography
Psychology
Sociology
Social Problems
Anthropology
U.S. Government (or "civics")

State/Local Government/History
Western Civilization/History
Non-Western Civilization/History
Ancient/Medieval History
20th Century History (includes Current Events)
U.S. History 1
U.S. History 2
Black History
Law
Political Science
History not Elsewhere Classified
Social Studies not Elsewhere Classified

C. Mathematics

Arithmetic
Math 1
Math 2
Math 3
Math 4
Geometry 1
Geometry: Other (Solid, Applied, etc.)
Algebra 1
Intermediate Algebra
Trigonometry
Calculus
Advanced Mathematics
Computer Science
Applied Mathematics
Business Mathematics
Mathematics not Elsewhere Classified

D. Sciences

General Science
Physical Science
Biology 1
Advanced Biology (or Biology 2)
Chemistry 1
Advanced Chemistry (or Chemistry 2)
Physics 1
Advanced Physics
Environmental Science
Geology
Science not Elsewhere Classified

E. Foreign Languages

French 1
French 2
French 3+ (French 3, French 4, Advanced French, etc.)
Spanish 1

Spanish 2
Spanish 3+ (Spanish 3, Spanish 4, Advanced Spanish etc.)
German 1
German 2
German 3+ (German 3, German 4, Advanced German, etc.)
Latin 1
Latin 2+ (Latin 2, Latin 3, Latin 4, etc.)
Other Languages (all levels)
Foreign Languages not Elsewhere Classified (e.g. Language & Culture)

F. Other Humanities (not including studio or performance classes which may be used for non-academic purposes)

General Art
Art History
General Music
Music Theory/Composition
Philosophy
Religion

G. Business and Office Occupations

General Business
Advanced Business
Accounting
Distributive Education
Shorthand 1
Advanced Transcription
Computer Operations
Office Machinery
Advanced Typing
Clerical, not Elsewhere Classified

H. Industrial Arts/Trades

General Shop
Advanced Shop
Specialty Shop 1 (e.g. Electrical Shop 1, Metal Shop 1, etc.)
Specialty Shop 2
Advanced Specialty Shop
Co-operative Education
Industrial Arts not Elsewhere Classified

I. Other Vocational Education

General Agriculture
Vocational Agriculture
Health Occupations
Specialty Home Economics (e.g. Sewing/Tailoring)
Vocational Home Economics (e.g. Cooking/Restaurant)
Design
Vocational Preparation

J. Physical and Health Education (with the exception of Physical Education, may be considered in Category K as well).

Physical Education
Health Education
Health and Physical Education (combination course)

K. Basic Personal Development and Service (traditional service courses common to large numbers of students on all tracks)

Typing 1
Music Performance (band, chorus, orchestra, etc.)
Home Economics 1

L. Other Personal Development, Service, and Hobbies (some of these may be used for pre-vocational purposes, but the likelihood is low).

Driver Education
Personal Budgeting/Consumer Education
Home Management
Training for Adulthood and Marriage
Infant and Child Care
Career Guidance
Personal Guidance
Foods and Cooking
Work Experience
Photography
Crafts 1 (jewelry, needlepoint, ceramics, etc.)
Crafts 2+ (second or third course in above)

M. Other (these may be either personal service or vocational)

Horticulture
Art 2+ (Art 2, Art 3, etc.)
Studio Art
ROTC
Study Skills

APPENDIX B: Courses Generating 0.5% of More of Credits in Either Sample: ALL GRADUATES

	% of Creds.		% of Studts,		Cr. Value		Mean GPA		% As & Bs		% Fail	
	I	II	I	II	I	II	I	II	I	II	I	II
1. Physical Education	7.9	7.3	96.4	89.0	56	60	280	297	72	81	1.0	1.7
2. U.S. Government	5.1	1.9	87.8	51.1	94	66	236	239	43	49	1.2	2.4
3. U.S. History I	4.7	4.1	97.0	84.5	100	89	233	237	42	49	2.3	3.5
4. English 1	4.6	3.7	96.9	76.5	101	96	236	243	43	53	1.0	2.8
5. English 2	4.6	3.5	97.7	74.8	100	93	230	236	36	50	1.4	3.2
6. English 3	4.3	2.5	90.4	54.0	99	91	229	231	40	48	1.9	4.8
7. English 4	4.0	1.9	84.7	41.1	100	92	236	240	43	52	0.9	2.8
8. Algebra I	4.0	3.4	75.5	63.8	97	90	216	224	36	46	4.3	6.0
9. Biology I	3.8	3.7	80.4	77.1	98	93	221	234	39	49	3.3	3.6
10. Western Civilization	3.8	1.9	87.6	41.7	98	86	226	235	40	50	2.7	4.3
11. General Science	3.1	1.8	61.1	37.3	97	91	215	238	34	51	2.5	3.9
12. Typing I	2.6	2.8	64.5	67.6	82	77	220	245	39	55	3.9	3.1
13. Music Performance	2.5	3.3	29.3	32.1	74	78	330	353	89	93	0.7	1.4
14. Geometry I	2.4	2.1	51.1	44.5	96	91	221	238	34	51	5.3	5.1
15. Specialty Shop I	2.4	2.6	31.3	31.0	95	90	235	248	44	56	2.9	3.0
16. Math 1	1.6	1.7	32.8	35.7	97	88	202	215	28	42	2.8	5.2
17. Remedial English	0.6	1.7	19.2	28.4	51	71	233	243	52	65	2.6	3.6
18. Intermediate Algebra	1.6	1.5	35.3	31.4	95	91	212	247	36	61	5.4	4.9
19. Chemistry I	1.6	1.5	34.4	32.4	99	93	227	249	39	55	3.2	4.1
20. Work Experience	1.4	1.6	19.3	22.9	92	81	325	314	82	91	0.7	0.8
21. Physics I*	0.7	1.6	13.2	31.5	105	92	257	243	51	51	1.6	4.0
22. Specialty Shop II	1.0	1.4	14.9	13.9	125	123	238	260	44	60	2.2	3.1
23. Spanish 1	1.4	1.3	29.2	26.6	95	90	244	247	49	53	4.8	5.6
24. French 1	1.3	0.6	26.1	13.4	101	92	248	263	50	63	3.7	5.4
25. General Art	1.3	1.1	29.9	26.8	81	75	267	269	59	66	1.8	2.1
26. Health Education	1.2	1.3	53.6	45.3	46	45	249	249	54	58	0.9	3.0
27. General Soc. Studies	0.5	1.3	8.0	22.0	97	89	227	230	41	48	2.2	4.7
28. Lit.: Genre, Period	0.1	1.2	1.5	30.5	93	51	242	241	46	53	0.0	4.4
29. Driver Education/Saf	0.0	1.1	0.3	58.6	20	35	278	267	44	70	0.0	2.9
30. Accounting	1.0	1.1	20.0	22.1	93	89	224	267	39	61	5.1	4.5
31. French 2	1.0	0.5	20.0	10.0	101	95	247	270	49	63	4.1	4.0
32. Spanish 2	1.0	0.8	20.7	16.8	97	93	238	260	47	56	3.8	4.6
33. Home Economics 1	0.6	1.0	13.2	21.8	91	89	264	269	55	64	-0.4	1.0
34. Specialty Home Ec	0.9	0.7	18.1	14.9	87	78	255	276	53	66	2.4	1.8
35. Advanced Spec. Shop	0.9	0.6	10.5	8.0	112	101	258	269	54	64	1.3	0.9
36. Lit.: Special Topics	0.3	0.9	6.9	26.6	94	50	278	242	65	54	0.7	4.2
37. American History 2*	0.3	0.9	6.1	22.5	101	66	251	242	54	50	0.3	2.9
38. Cooperative Educ	0.0	0.9	0.3	8.0	140	162	213	289	43	76	0.0	1.3
39. Clerical NEC	0.8	0.9	14.8	15.3	101	100	248	266	47	63	1.4	2.5

40. Biology 2	0.8	0.8	14.6	17.3	99	77	247	256	49	61	2.6	3.4
41. Health & Phys Ed.	0.0	0.8	0.8	12.0	59	84	322	301	91	79	0.0	1.4
42. Advanced Typing	0.8	0.6	18.1	14.2	83	81	227	262	39	59	2.7	1.8
43. Speech 1	0.7	0.7	18.3	21.4	79	57	266	255	59	62	2.5	3.1
44. Shorthand 1	0.7	0.6	16.9	13.1	92	85	233	251	45	59	2.3	6.3
45. Advanced Math	0.7	0.3	12.8	7.7	92	74	230	258	55	50	2.6	6.3
46. Psychology	0.1	0.7	2.4	24.1	55	55	225	253	40	58	6.2	4.4
47. Advanced Writing	0.5	0.7	9.6	16.3	84	64	309	299	76	69	0.1	2.9
48. Business I	0.5	0.7	11.6	16.7	97	84	224	239	38	48	1.6	2.3
49. Writing NEC	0.0	0.7	1.4	22.1	49	48	225	250	55	57	9.3	3.0
50. Art 2+	0.6	0.5	8.3	8.0	95	86	279	301	62	74	1.0	1.3
51. Advanced Business	0.6	0.3	13.2	10.1	76	63	210	226	62	50	2.4	5.6
52. French 3	0.6	0.3	8.9	4.3	102	95	290	304	68	75	1.4	1.4
53. Mathematics NEC	0.6	0.1	10.7	3.1	98	70	235	255	45	60	4.3	5.2
54. Geography	0.4	0.6	9.8	16.4	85	74	213	238	36	51	2.1	3.4
55. Geology	0.3	0.6	5.4	14.3	99	85	241	240	46	49	0.9	3.1
56. Business Math	0.5	0.6	10.1	14.9	92	77	188	210	29	39	8.4	6.9
57. Math 2	0.4	0.6	7.9	12.9	93	86	192	204	26	38	5.8	10.1
58. Foods and Cooking	0.4	0.6	8.7	15.2	85	58	258	267	56	64	0.9	2.7
59. Distributive Educ	0.3	0.6	4.9	8.4	98	111	248	258	49	55	1.0	3.2
60. Anthropology	0.5	0.5	13.0	12.3	82	74	245	254	45	56	0.9	2.3
61. General Shop	0.5	0.5	11.6	12.1	76	83	230	247	40	59	1.5	2.7
62. Sociology	0.2	0.5	6.9	19.0	63	54	273	253	62	58	1.8	3.2
63. Train.Marriage/Adult	0.0	0.5	1.1	16.8	57	58	285	272	69	65	0.0	2.8
64. Vocational Home Ec	0.3	0.5	4.4	7.8	95	101	273	292	60	77	0.6	0.7
65. Latin 1	0.5	0.1	10.4	2.7	97	96	250	290	52	66	5.7	0.0
66. Physical Science*	0.5	-.-	9.8	-.-	98	---	221	---	38	--	3.3	-.-
TOTAL:	93.0	87.7										

* These course categories are not comparable in the two samples. See discussion in the text, p.8.

APPENDIX C: Courses Generating 0.5% or More of Credits in Either Sample: ACADEMIC TRACK GRADUATES

	% of Creds.		% of Studs.		Cr. Value		Mean GPA		% As&Bs		% Fail	
	I	II	I	II	I	II	I	II	I	II	I	II
1. Physical Education	7.8	7.0	95.8	89.0	57	58	301	313	82	67	0.5	1.1
2. U.S. Government	4.8	1.7	88.0	47.5	95	66	275	281	62	66	0.3	0.9
3. U.S. History 1	4.5	4.0	95.0	83.9	103	92	277	281	62	66	0.5	2.1
4. English 1	4.5	3.6	96.2	76.0	103	98	273	278	62	67	0.2	1.1
5. English 2	4.6	3.5	97.2	75.9	103	96	264	270	57	65	0.5	1.5
6. Algebra I	4.6	3.8	85.8	72.4	102	93	243	245	46	55	2.0	3.8
7. English 3	4.3	2.5	91.3	55.2	103	94	265	269	57	65	0.6	2.9
8. English 4	4.1	2.0	88.0	43.7	102	94	264	271	57	65	0.4	1.5
9. Western Civilization	4.0	2.1	82.9	46.6	102	90	270	275	59	65	0.8	2.1
10. Biology I	3.8	4.1	81.9	86.4	102	96	263	265	55	61	1.2	1.7
11. Music Performance	3.1	4.3	34.8	39.5	74	79	340	363	94	96	3.4	0.7
12. Geometry I	3.2	3.3	77.8	71.5	98	94	231	255	43	56	4.0	3.2
13. Typing I	2.4	2.6	62.7	68.2	83	74	255	276	53	70	1.9	1.4
14. Chemistry I	2.6	2.8	56.8	61.1	99	96	231	263	41	59	3.4	2.7
15. Intermediate Algebra	2.3	2.6	51.5	55.5	96	94	223	258	40	58	4.7	3.0
16. General Science	2.6	1.5	53.9	31.6	99	94	257	273	54	65	1.4	2.0
17. Physics I*	1.1	2.2	22.7	42.9	107	95	265	270	55	62	0.8	1.4
18. Spanish 1	1.9	1.7	37.9	35.2	98	92	265	272	57	64	2.5	4.6
19. French 1	1.9	1.0	37.3	20.4	104	95	265	276	56	70	2.3	3.1
20. French 2	1.6	0.9	31.3	19.2	103	95	257	276	53	65	3.5	4.8
21. Specialty Shop I	1.5	1.5	24.5	24.2	88	82	267	284	58	68	1.7	0.8
22. Spanish 2	1.5	1.2	31.0	26.5	98	96	252	267	52	62	2.6	3.5
23. Remedial English	0.4	1.5	13.8	24.8	45	74	278	277	72	66	1.3	1.1
24. Lit.: Genre, Period	0.1	1.4	1.5	34.4	90	54	255	285	48	68	0.0	1.2
25. Health Education	1.2	1.2	52.8	46.0	48	44	286	289	72	73	0.1	0.2
26. Biology 2	1.2	1.1	22.4	24.3	102	83	263	285	55	70	1.3	1.4
27. Advanced Mathematics	1.2	0.6	20.8	16.1	94	74	270	271	60	66	1.1	5.7
28. General Art	1.1	0.9	24.5	22.9	85	72	297	281	61	70	0.6	1.2
29. French 3+	1.1	0.7	16.2	9.8	103	96	293	302	69	75	1.4	1.8
30. General Social Studies	0.4	1.1	6.7	19.6	100	90	285	270	66	62	0.4	2.3
31. Lit.: Special Topics	0.4	1.0	8.9	27.2	92	52	304	283	75	70	0.0	1.5
32. American History 2*	0.4	1.0	7.6	24.7	102	72	292	291	74	71	0.0	1.6
33. Math 1	0.7	1.0	15.9	21.0	97	90	227	226	41	44	2.6	3.6
34. Work Experience	1.0	0.9	15.8	17.8	88	72	351	326	92	85	0.4	1.0
35. Driver Education/Saf.	0.0	1.0	0.4	60.7	23	34	283	281	75	79	0.0	2.1
36. Accounting	0.5	1.0	10.3	18.2	98	94	263	292	53	70	2.8	2.6
37. Speech I	0.9	0.7	23.3	20.9	84	59	280	297	71	77	1.4	6.8
38. Psychology	0.1	0.9	3.4	30.0	85	57	252	279	48	68	2.0	3.3
39. Advanced Writing	0.7	0.9	13.4	20.3	82	69	322	327	80	80	0.1	1.0

40. Health & Phys. Educ.	0.1	0.9	0.8	13.1	73	87	319	329	90	88	0.0	0.4
41. Writing NEC	0.0	0.9	2.0	27.9	51	49	256	279	65	69	5.3	1.8
42. Latin 1	0.8	0.2	17.0	5.1	99	97	266	301	49	71	4.7	0.0
43. Mathematics NEC	0.8	0.1	13.5	3.2	101	72	255	274	54	61	3.2	0.0
44. Spanish 3+	0.7	0.7	11.3	10.9	100	93	286	277	68	69	0.7	2.6
45. Geology	0.3	0.7	5.8	15.8	100	91	262	275	58	64	0.6	1.2
46. German 1	0.6	0.5	11.8	9.5	105	95	270	302	58	76	0.5	0.0
47. Latin 2+	0.6	0.2	11.0	3.0	100	93	270	273	59	66	2.0	5.6
48. Home Economics 1	0.5	0.6	9.0	15.1	101	83	301	300	72	78	0.0	1.2
49. Art 2+	0.5	0.4	7.8	6.4	96	87	300	316	74	82	0.0	2.2
50. Specialty Home Econ	0.5	0.5	10.3	10.0	85	75	299	329	74	84	2.0	0.0
51. Geography	0.4	0.5	10.9	13.9	88	76	247	275	50	66	0.6	2.6
52. Sociology	0.2	0.5	7.6	20.5	68	54	296	292	75	72	1.8	1.8
53. Anthropology	0.4	0.5	8.7	13.2	99	77	295	289	70	68	0.4	0.7
54. Economics	0.4	0.5	9.9	19.2	78	54	267	279	62	69	1.0	1.5
55. Drama & Debate	0.4	0.5	8.1	13.2	90	66	298	320	73	80	1.0	1.1
56. Trigonometry	0.3	0.5	7.6	15.3	94	61	220	268	40	58	2.7	3.0
57. Math 2	0.2	0.5	3.5	10.6	91	89	213	221	38	43	7.8	10.2
58. Math 3	0.1	0.5	2.0	10.6	88	92	216	270	43	57	11.1	4.4
59. Specialty Shop 2	0.4	0.5	7.1	7.5	100	111	272	262	56	64	1.7	5.4
TOTAL:	94.8	87.0										

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APPENDIX D: COURSES GENERATING 0.5% or MORE OF CREDITS IN EITHER SAMPLE: GENERAL TRACK GRADUATES

	% of Creds.		% of Studts.		Cr. Value		Mean GPA		% As & Bs		% Ds & Fs	
	I	II	I	II	I	II	I	II	I	II	I	II
1. Physical Education	7.8	7.8	97.6	88.6	50	61	250	289	63	77	10	8
2. U. S. Government	6.5	2.0	89.6	53.4	95	66	189	218	20	29	34	27
3. U.S. History 1	5.0	4.1	99.0	83.7	95	86	178	208	28	38	63	29
4. English 2	4.9	3.5	98.9	73.5	96	91	178	215	17	41	39	25
5. English 1	4.8	3.7	96.8	75.9	96	96	184	222	19	45	34	22
6. English 3	4.7	2.4	94.0	51.8	95	89	185	207	16	38	31	26
7. Biology 1	4.3	3.5	86.9	73.2	92	90	164	211	16	30	49	26
8. English 4	4.1	1.9	82.8	40.7	98	91	189	223	17	45	31	23
9. Western Civilization	4.0	1.7	80.1	38.1	94	84	161	206	15	39	48	29
10. Algebra 1	3.7	3.2	68.2	59.9	88	89	165	211	18	30	45	27
11. Specialty Shop 1	3.7	2.9	43.7	35.2	89	84	211	235	33	51	23	16
12. General Science	3.4	2.1	59.8	42.2	94	90	174	221	16	44	39	23
13. Music Performance	2.2	3.1	25.6	29.4	74	76	311	344	79	90	4	3
14. Typing 1	2.5	2.9	60.8	67.0	77	78	173	224	19	45	39	21
15. Math 1	2.8	2.2	50.6	43.2	94	87	182	206	19	39	35	29
16. Work Experience	1.7	2.0	21.4	26.6	94	82	304	311	78	90	5	2
17. General Art	1.9	1.3	39.4	29.3	83	77	226	261	38	65	20	11
18. Remedial English	0.9	1.9	24.2	31.4	54	69	192	230	31	48	14	18
19. Gen. Social Studies	0.5	1.5	8.9	23.7	96	89	185	211	19	41	33	27
20. Specialty Shop 2	1.3	1.5	22.8	16.6	99	114	222	252	36	55	22	14
21. Geometry 1	0.9	1.4	22.4	32.0	82	87	155	212	16	30	45	27
22. Specialty Home Econ.	1.4	1.0	23.8	18.5	92	79	239	266	43	48	11	11
23. Health Education	1.4	1.3	60.2	44.6	44	47	204	232	28	49	24	21
24. Home Economics 1	0.8	1.2	14.2	25.1	92	91	233	261	39	57	10	10
25. Lit.:Genre, Period	0.0	1.2	0.4	29.7	100	49	142	205	0	42	67	28
26. Physics I*	0.1	1.2	2.0	24.2	95	89	196	211	29	38	21	26
27. Accounting	1.1	1.1	23.0	23.1	87	85	188	248	24	55	38	20
28. Driver Education	0.0	1.1	0.0	57.8	--	36	---	256	--	63	--	11
29. Spanish 1	1.1	1.1	22.1	22.8	87	89	189	227	31	35	38	24
30. Art 2+	1.1	0.6	13.6	9.2	94	86	242	297	46	72	14	6
31. Lit.: Special Topics	0.2	1.0	2.9	28.6	93	50	216	217	44	45	9	25
32. General Business 1	1.0	0.8	20.2	18.6	97	83	205	221	29	40	27	20
33. Clerical NEC	0.7	1.0	12.0	17.3	93	89	214	266	33	58	18	17

34. Advanced Business	1.0	0.4	22.8	11.8	73	61	163	214	13	43	43	30
35. Business Math	0.5	0.9	11.1	20.9	88	77	162	203	12	26	43	31
36. Chemistry I	0.5	0.9	10.4	18.7	94	89	188	220	25	44	44	24
37. U.S. History 2	0.1	0.9	2.8	21.5	100	61	180	202	20	35	45	31
38. Intermediate Algebra	0.8	0.8	17.7	19.1	90	86	163	231	16	50	46	22
39. Foods & Cooking	0.8	0.7	12.7	18.6	98	55	249	241	50	56	10	13
40. General Shop	0.8	0.6	17.5	14.2	80	83	219	233	33	52	14	13
41. Speech 1	0.7	0.8	18.5	22.9	74	55	211	226	31	52	22	21
42. Health & Phys. Educ.	0.0	0.7	0.7	11.4	64	80	321	287	88	72	0	7
43. Advanced Spec. Shop	0.7	0.6	11.1	9.2	100	95	228	255	36	59	22	12
44. Distributive Educ.	0.6	0.7	9.0	10.6	93	103	244	243	42	50	14	19
45. Train./Adulthood	0.0	0.7	1.5	21.8	59	59	269	266	73	63	9	10
46. Cooperative Education	0.0	0.7	0.0	7.6	---	139	---	289	--	65	--	6
47. French 1	0.7	0.5	14.3	9.6	94	88	188	250	30	54	41	22
48. Advanced Typing	0.7	0.6	16.6	14.1	76	79	213	244	27	53	23	16
49. Geography	0.4	0.7	9.9	17.4	79	71	182	229	20	49	37	20
50. Psychology	0.1	0.7	2.0	23.6	57	53	177	227	43	36	29	23
51. Vocat.Home Economics	0.6	0.6	8.6	10.3	102	91	243	289	46	76	10	8
52. Math 2	0.6	0.6	11.8	13.7	89	84	175	193	22	56	38	32
53. Geology	0.4	0.6	8.1	13.6	96	81	225	221	34	43	15	23
54. Writing NEC	0.3	0.6	1.8	19.2	35	47	135	223	32	47	46	24
55. Specialty Crafts	0.2	0.6	3.9	14.0	91	54	239	279	42	68	12	7
56. Spanish 2	0.5	0.6	10.3	12.6	88	90	179	230	26	38	41	21
57. Anthropology	0.6	0.5	12.2	11.9	95	71	189	229	25	48	38	20
58. Advanced Speech	0.3	0.6	7.5	13.3	71	65	195	284	29	72	37	13
59. Biology 2+	0.4	0.6	8.2	13.8	92	70	195	220	25	43	38	23
60. Advanced Writing	0.3	0.6	5.2	14.4	82	60	262	286	54	63	8	12
61. Sociology	0.3	0.5	13.2	19.2	54	53	240	224	46	47	16	25
62. Shorthand 1	0.5	0.5	10.7	12.2	94	79	221	209	23	47	19	29
63. Vocational Agricult.	0.1	0.5	0.8	5.4	77	99	330	258	54	61	15	12
64. Spec. Shop NEC	0.0	0.5	0.0	7.6	--	102	---	229	--	45	--	21
65. Soc.Studies NEC	0.1	0.5	1.3	13.5	94	58	171	221	00	33	46	24
66. Economics	0.3	0.5	11.5	16.8	56	54	190	208	23	37	29	27
TOTAL:	94.4%	90.0%										

APPENDIX E : COURSES GENERATING 0.5% or MORE OF CREDITS IN EITHER SAMPLE: VOCATIONAL TRACK GRADUATES

	% of Credits		% of Students		Cred.Value		Mean GPA		% As & Bs		% Ds & Fs	
	I	II	I	II	I	II	I	II	I	II	I	II
1. Physical Education	6.1	6.8	97.1	89.6	45	58	257	282	63	75	10	24
2. U. S. Government	5.6	2.0	85.8	51.9	93	77	208	217	29	41	26	26
3. U.S. History 1	4.8	4.2	98.8	86.8	98	88	198	216	29	41	26	24
4. English 1	4.8	3.8	98.1	78.4	99	94	207	222	28	44	25	22
5. English 2	4.7	3.6	98.0	74.8	98	93	205	217	29	42	26	24
6. English 3	4.5	2.7	94.2	56.9	97	90	204	207	28	37	25	26
7. Specialty Shop 1	2.9	4.0	31.9	34.0	110	112	224	241	39	53	22	15
8. English 4	4.0	1.7	83.3	37.7	98	91	213	214	30	43	21	25
9. Biology 1	3.9	3.2	81.4	68.4	96	91	188	209	25	40	39	28
10. General Science	3.6	1.8	64.9	37.6	96	91	186	223	21	46	35	20
11. Algebra 1	3.3	3.0	66.0	55.4	93	87	185	203	25	39	39	30
12. Western Civilization	3.2	1.7	67.6	38.6	94	60	178	200	20	37	42	30
13. Specialty Shop 2	2.9	2.9	22.3	19.9	153	145	235	270	42	66	18	14
14. Typing 1	2.9	2.9	68.3	68.6	83	80	199	233	30	50	32	18
15. Cooperative Education	0.1	2.4	0.5	19.4	153	180	193	291	46	78	45	7
16. Math 1	2.3	2.2	46.1	46.1	98	90	205	221	29	45	28	21
17. Accounting	2.2	1.6	39.9	27.4	92	92	217	265	37	61	28	14
18. Clerical NEC	2.1	2.1	34.5	28.2	104	117	250	265	47	64	10	13
19. Work Experience	1.2	2.1	14.5	23.2	94	93	300	306	76	88	23	3
20. Advanced Spec. Shop	2.0	0.9	20.2	9.1	115	138	235	271	57	61	12	13
21. Music Performance	1.5	1.9	21.1	25.2	68	77	318	343	83	88	4	3
22. Remedial English	0.8	1.7	26.9	28.5	53	69	221	218	46	45	17	21
23. Shorthand 1	1.7	1.1	37.8	22.7	91	96	215	269	37	63	29	8
24. Specialty Home Econ.	1.5	0.8	28.3	16.1	84	81	246	257	50	61	15	15
25. Health Education	1.5	1.3	65.7	46.4	44	43	194	221	40	48	18	24
26. Advanced Typing	1.5	1.3	35.5	22.9	82	82	221	262	35	48	18	11
27. General Social Studies	0.6	1.3	9.7	22.9	96	90	192	211	29	44	37	25
28. Home Economics 1	0.9	1.3	18.9	28.0	95	90	227	255	47	63	11	11
29. Physical Science*	0.2	1.2	4.3	25.2	90	92	211	219	33	44	20	23
30. Business Math	1.2	0.9	24.1	19.7	96	85	196	217	34	40	35	27
31. General Art	1.1	1.1	32.3	28.3	70	75	245	268	54	65	14	12
32. Geometry 1	1.1	0.9	23.7	21.0	91	86	196	215	33	44	37	28

33. General Business 1	1.1	1.1	22.8	25.1	96	82	227	238	40	50	20	15
34. Advanced Shorthand	1.0	0.4	18.4	6.4	105	101	233	245	43	54	24	17
35. Driver Education	0.0	1.0	0.2	55.8	10	34	400	261	33	67	0	9
36. Vocat. Home Economics	0.4	1.0	7.2	10.1	96	128	270	289	58	77	11	6
37. Distributive Education	0.6	1.0	7.4	11.0	100	133	245	274	53	61	12	17
38. Specialty Shop NEC	0.9	0.7	3.4	7.3	165	132	243	215	43	36	15	16
39. Advanced Business	0.9	0.4	17.3	11.0	86	68	203	211	30	43	30	29
40. Spanish 1	0.8	0.8	17.9	18.5	91	84	209	197	37	31	31	32
41. Foods & Cooking	0.8	0.5	15.5	13.4	83	57	247	271	53	69	15	8
42. Intermediate Algebra	0.8	0.6	17.2	13.0	94	87	191	198	29	28	38	28
43. Anthropology	0.8	0.5	23.2	11.2	70	77	226	237	35	49	20	19
44. Geography	0.4	0.8	9.0	19.0	85	79	177	203	22	34	40	27
45. U.S. History 2	0.3	0.8	5.8	20.1	98	65	172	212	17	41	48	24
46. French 1	0.8	0.4	16.2	8.2	94	88	209	222	37	47	30	23
47. Health & Physical Ed.	0.0	0.8	1.0	11.7	42	87	341	264	95	72	0	9
48. Design	0.7	0.5	4.3	4.9	143	149	275	262	52	61	5	13
49. General Shop	0.6	0.7	14.7	14.3	74	84	212	248	32	61	19	14
50. Speech 1	0.4	0.7	9.6	19.9	80	57	232	248	43	61	20	18
51. Math 2	0.4	0.7	7.7	14.4	95	89	187	217	20	44	33	25
52. Lit: Special Topics	0.3	0.6	3.8	20.7	139	47	202	220	28	41	17	20
53. Chemistry 1	0.6	0.3	12.3	8.0	97	84	214	186	30	41	17	32
54. Geology	0.2	0.6	4.5	13.4	97	84	221	201	37	30	17	25
55. Applied Mathematics	0.6	0.2	8.5	5.3	95	80	181	207	21	40	38	47
56. Vocational Agriculture	0.4	0.5	2.8	5.7	117	91	251	247	37	53	16	8
57. Economics	0.5	0.4	20.3	13.5	54	57	237	222	47	40	17	29
58. Writing NEC	0.0	0.5	3.9	8.8	95	85	200	224	44	44	11	23
59. Art 2-4	0.3	0.5	3.9	8.8	95	85	268	289	53	68	9	7
60. Business English	0.2	0.5	5.8	12.8	81	73	236	267	46	65	16	13
61. Health Occupations	0.0	0.5	0.5	4.2	138	152	300	305	100	80	0	3
62. Social Studies NEC	0.1	0.5	1.2	13.4	82	63	190	239	13	53	13	19
63. Biology 2	0.1	0.5	2.7	11.0	95	73	200	217	19	39	23	24
TOTAL:	95.7%	89.4%										

APPENDIX F

MAJOR CURRICULUM COMPONENTS:
Percentage of Credits Generated, by Track

	Academic		General		Vocational		All Grads.	
	I	II	I	II	I	II	I	II
A. Traditional Academic								
Language Arts	21.0	19.6	21.2	19.4	20.2	18.1	20.6	19.2
Social Studies	15.9	14.9	18.8	15.3	16.5	14.0	16.3	14.8
Mathematics	14.0	13.4	10.2	10.4	10.4	9.2	12.5	11.5
Sciences	12.6	13.2	10.2	9.3	9.4	7.9	11.0	10.5
Foreign Languages	11.5	7.7	3.3	3.2	3.1	2.2	7.5	4.8
Other Humanities	1.5	1.4	2.3	1.8	1.5	1.4	1.6	1.6
SUB-TOTAL (84 courses)	76.5	70.2	66.0	59.4	60.8	52.8	69.5	62.4
B. Vocational								
Business/Office	2.2	3.3	5.7	5.5	10.8	9.2	5.3	5.3
Industrial Arts	2.6	3.1	6.8	6.9	8.7	11.7	5.2	6.4
Other	0.7	1.2	2.2	3.0	3.2	3.9	1.8	2.4
SUB-TOTAL (24 courses)	5.5	7.6	14.7	15.4	22.7	24.8	12.3	14.1
C. Physical and Health Education (3 courses)	9.1	9.1	9.2	9.8	7.6	8.9	9.1	9.4
D. Basic Personal Service								
Typing 1	2.4	2.6	2.5	2.9	2.9	2.9	2.6	2.8
Home Economics 1	0.5	0.6	0.8	1.2	0.9	1.3	0.6	1.0
Music Performance	3.1	4.3	2.2	3.1	1.5	1.9	2.5	3.3
SUB-TOTAL (3 courses)	6.0	7.5	5.5	7.2	5.3	6.1	5.7	7.1
E. Personal Service, Hobbies Development (12 courses)	2.1	4.3	3.1	6.6	2.5	5.8	2.5	5.7
F. Other (5 courses)	0.8	1.3	1.5	1.5	1.2	1.6	0.9	1.3
TOTAL:	100.0%	100.0%	100.0%	100.1%	100.1%	100.0%	100.0%	100.0%

I = Hopkins Data (High School Class of 1969)
II = Ohio State Data (High School Classes of 1976-1981)

TRACK COMPARISONS: Language Arts Courses

	Percentage of Credits						Percentage of Students						Mean Credit Values						Mean Grade Point Averages					
	I (Hopkins)			II (Ohio State)			I			II			I			II			I			II		
	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V
1. English 1	4.5	4.8	4.8	3.6	3.7	3.8	96	97	98	76	78	78	103	96	99	98	95	94	273	184	207	278	222	222
2. English 2	4.6	4.9	4.7	3.5	3.5	3.6	97	99	98	76	74	75	103	96	98	98	96	91	264	178	205	270	215	217
3. English 3	4.3	4.7	4.5	2.5	2.4	2.7	91	94	94	55	52	57	103	95	97	94	89	90	265	185	204	269	207	207
4. English 4	4.1	4.1	4.0	2.0	1.9	1.7	88	83	83	44	41	38	102	98	98	94	91	91	264	189	213	271	223	214
5. Remedial English	0.3	0.9	0.8	1.5	1.9	1.4	14	24	27	25	31	29	45	54	53	74	69	69	278	192	221	277	230	218
6. Lit.:Genre,Period	0.1	0.0	0.0	1.4	1.2	0.9	2	0	0	34	30	25	90	100	100	54	49	45	255	142	250	285	205	212
7. Lit.:Spec. Topics	0.4	0.2	0.3	1.0	1.0	0.6	9	3	4	27	29	21	92	93	139	52	50	47	304	216	202	283	217	220
8. Advanced Writing	0.7	0.3	0.2	0.9	0.6	0.4	13	5	5	20	14	12	82	82	76	69	60	60	322	262	137	327	286	248
9. Speech I	0.9	0.7	0.4	0.7	0.8	0.7	23	19	10	21	23	20	84	74	80	59	55	57	280	211	232	297	226	248
10.Writing NEC	0.0	0.0	0.0	0.9	0.6	0.5	2	2	6	28	19	18	51	35	44	49	47	46	256	135	200	279	223	224
11.Advanced Speech	0.4	0.3	0.2	0.5	0.6	0.4	8	8	4	13	13	12	90	71	79	66	65	66	298	195	211	320	284	285
12.Business English	0.0	0.2	0.2	0.1	0.2	0.5	1	6	6	3	7	13	65	54	81	53	59	73	220	198	236	234	222	267
13.Mass Media etc.	0.0	0.0	0.0	0.2	0.4	0.4	0	0	0	8	13	12	--	--	--	52	54	57	---	---	---	278	236	254
14.Advanced English	0.3	0.0	0.0	0.3	0.1	0.1	6	0	1	8	2	1	102	100	100	82	77	81	324	333	243	312	270	341
15.English NEC	0.4	0.1	0.1	0.2	0.2	0.2	3	1	1	5	6	4	164	95	98	54	51	63	336	263	200	298	200	223
16.Eng. Grammar	0.0	0.0	0.0	0.2	0.2	0.1	0	0	0	7	6	5	108	100	100	42	46	48	262	200	400	269	227	252
17.Advanced Reading	0.0	0.0	0.0	0.1	0.1	0.1	0	1	0	5	5	5	53	40	50	47	41	45	351	150	250	310	223	248
TOTALS:	21.0	21.2	20.2	19.6	19.4	18.1																		

APPENDIX G

TRACK COMPARISONS: Social Studies

APPENDIX H

	Percentage of Credits						Percentage of Students						Mean Credit Values						Mean Grade Point Averages					
	I			II			I			II			I			II			I			II		
	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V
1. U.S. Government	4.7	6.3	5.6	1.7	2.0	2.0	88	90	86	48	53	52	95	95	93	66	66	68	275	186	208	281	218	217
2. U.S. History I	4.5	5.0	4.8	4.1	4.1	4.2	95	99	99	84	84	87	103	95	98	92	86	88	277	178	198	281	208	216
3. Western Civilization	4.0	4.0	3.2	2.1	1.7	1.7	83	80	68	47	38	39	102	94	94	90	84	84	270	161	178	275	206	200
4. Gen. Social Studies	0.4	0.5	0.6	1.1	1.5	1.3	7	9	10	20	24	23	100	96	96	90	89	90	285	185	192	270	211	211
5. U. S. History II*	0.4	0.1	0.3	1.0	0.9	0.8	8	3	6	25	22	20	102	100	98	72	61	65	292	180	172	291	202	212
6. Geography	0.4	0.4	0.4	0.5	0.7	0.8	11	10	9	14	17	19	88	79	85	76	71	79	247	182	177	275	229	203
7. Psychology	0.1	0.1	0.0	0.9	0.7	0.4	3	2	1	30	24	14	85	57	71	57	53	55	252	177	193	279	227	238
8. Anthropology	0.4	0.6	0.8	0.5	0.5	0.5	9	12	23	13	12	11	99	95	70	77	71	77	295	189	226	289	229	237
9. Economics	0.4	0.3	0.5	0.5	0.5	0.4	10	12	20	19	17	14	78	56	54	54	54	57	267	190	237	279	208	222
10.Sociology	0.2	0.4	0.1	0.5	0.5	0.5	8	13	4	21	19	17	68	54	56	54	53	54	296	240	264	292	224	238
11.Soc. Studies NEC	0.1	0.1	0.1	0.4	0.5	0.5	1	1	1	11	14	13	94	94	32	63	58	63	228	171	190	303	221	222
12.State/Local Gov't	0.2	0.2	0.1	0.3	0.4	0.4	5	5	4	11	15	11	67	65	56	55	53	60	277	186	190	287	213	229
13.20th Cent. History	0.0	0.0	0.0	0.3	0.3	0.2	1	0	0	9	9	6	97	--	75	62	58	66	300	---	133	287	212	243
14.Law	0.0	0.2	0.0	0.2	0.2	0.1	1	1	1	7	6	5	56	50	50	45	46	54	328	320	200	244	233	256
15.History NEC	0.0	0.0	0.0	0.2	0.2	0.1	0	0	0	4	4	3	104	50	100	92	79	79	256	400	200	304	223	251
16.Political Science	0.0	0.1	0.0	0.2	0.1	0.1	1	0	0	6	6	4	56	50	50	48	51	57	328	250	300	279	227	212
17.Social Problems	0.0	0.1	0.0	0.1	0.2	0.1	0	1	1	5	6	5	96	100	96	51	52	56	222	190	184	301	212	262
18.Black History	0.0	0.1	0.0	0.1	0.1	0.1	1	1	0	3	4	3	74	83	100	51	48	50	284	233	200	261	178	234
19.Non-West. History	0.1	0.1	0.0	0.1	0.1	0.1	3	1	1	5	5	3	97	95	100	57	56	58	298	211	186	269	196	246
20.Ancient/Mediev.Hist.	0.0	0.0	0.0	0.1	0.1	0.0	1	0	0	3	2	1	100	100	100	68	40	39	238	150	167	242	229	273
TOTALS:	15.9	18.8	16.5	14.9	15.3	14.2																		

* Courses not comparable in I (Hopkins) and II (Ohio State)

TRACK COMPARISONS: Science Courses

	Percentage of Credits						Percentage of Students						Mean Credit Values						Mean Grade Point Averages					
	I			II			I			II			I			II			I			II		
	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V
1. Biology 1	3.8	4.3	3.9	4.1	3.5	3.2	82	87	81	86	73	68	103	92	96	96	90	91	263	164	188	265	211	209
2. General Science	2.6	3.4	3.6	1.5	2.1	1.8	54	60	65	32	42	38	100	94	96	94	90	91	257	174	186	273	221	223
3. Physics 1 *	1.1	0.1	0.2	2.2	1.2	1.2	23	2	4	43	24	25	108	100	90	95	89	92	265	217	176	270	211	219
4. Physical Science*	0.3	0.6	0.5	-.-	-.-	-.-*	7	11	10	--	--	--*	97	95	103	---	---	---*	354	196	211	---	---	---*
5. Chemistry 1	2.7	0.5	0.6	2.8	0.9	0.3	57	10	12	61	19	8	103	94	97	96	89	84	231	188	214	263	220	186
6. Biology 2+	1.2	0.4	0.1	1.1	0.6	0.5	22	8	3	24	14	11	103	92	95	83	70	73	265	195	200	285	220	217
7. Geology	0.3	0.4	0.2	0.7	0.6	0.6	6	8	5	16	14	13	101	96	97	91	81	84	262	225	221	275	221	201
8. Chemistry 2+	0.4	0.2	0.0	0.4	0.0	0.0	8	3	1	8	1	0	104	100	100	87	88	100	253	236	264	275	287	200
9. Environ. Science	0.0	0.1	0.0	0.2	0.3	0.2	0	0	0	6	8	6	---	---	---	59	60	61	---	100	---	288	189	247
10.Advanced Physics	0.2	0.1	0.0	0.2	0.0	0.0	4	1	1	4	1	1	100	100	100	85	75	56	252	188	190	241	240	174
11.Science NEC	0.0	0.1	0.0	0.0	0.1	0.1	1	0	0	1	2	1	50	75	---	71	59	79	300	233	---	254	180	248
TOTALS:	12.6	10.2	9.1	13.2	9.3	7.9																		

* The Hopkins data (I) distinguished between "Physics 1" and "Physical Science," a type of General Science Course that is offered principally in the 9th and 10th grades. The OSU data (II) did not make such a distinction, but folded both courses into the category of "Physics 1."

A = Academic Track; G = General Track; V = Vocational Track

I = 1969 sample (Hopkins); II = 1976-1981 sample (Ohio State)

APPENDIX I

TRACK COMPARISONS: Mathematics

	Percentage of Credits						Percentage of Students						Mean Credit Values						Mean Grade Point Averages					
	I			II			I			II			I			II			I			II		
	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	W	a	G	V	A	G	V
1. Algebra I	4.6	3.7	3.3	3.8	3.2	3.0	86	68	66	72	60	55	102	88	93	93	89	87	243	165	185	245	211	203
2. Geometry I	3.2	0.9	1.1	3.3	1.4	0.9	78	22	24	72	32	21	98	82	91	94	87	86	231	155	196	255	212	215
3. Algebra II	2.3	0.8	0.8	2.6	0.9	0.6	52	18	17	56	19	13	96	90	94	94	85	87	223	163	191	258	231	198
4. Advanced Math	1.2	0.2	0.1	0.6	0.1	0.1	21	7	2	16	3	2	94	61	71	74	74	54	270	206	214	271	221	158
5. Math NEC	0.8	0.2	0.4	0.1	0.1	0.1	14	5	8	3	3	3	101	78	93	72	63	81	255	164	204	274	231	261
6. Math 1	0.7	2.8	2.3	1.0	2.2	2.2	16	51	46	21	43	46	97	94	98	90	87	90	227	182	205	226	206	221
7. Math 2	0.2	0.6	0.4	0.3	0.6	0.7	4	12	8	11	14	14	91	90	95	89	83	89	213	175	187	221	193	217
8. Math 3	0.1	0.0	0.0	0.3	0.3	0.2	2	0	0	11	6	4	88	N.C	N.C	92	87	86	216	N.C	N.C	270	225	245
9. Math 4	0.2	0.2	0.1	0.3	0.1	0.1	4	7	3	8	3	2	91	61	66	90	77	80	261	176	211	270	298	283
10. Trigonometry	0.3	0.0	0.1	0.5	0.1	-.-	8	1	3	15	3	1	94	100	49	61	63	60	220	200	238	265	238	163
11. Geometry 2/Oth	0.3	0.1	0.1	0.1	0.1	0.1	5	2	4	4	1	2	128	118	62	65	79	100	295	223	256	293	223	306
12. Business Math	0.1	0.5	1.2	0.2	0.9	0.9	3	11	24	6	21	20	90	88	96	68	77	84	201	162	196	228	203	217
13. Calculus	0.0	-.-	-.-	-.3	0.0	-.-	1	--	--	6	Nil	--	93	--	--	86	100	--	319	---	---	294	300	---
14. Applied Math	0.0	0.2	0.5	0.1	0.2	0.2	1	5	9	2	5	5	79	86	95	76	71	80	230	180	181	242	199	207
15. Arithmetic	0.0	0.0	0.0	-.-	0.1	0.1	1	1	1	--	2	2	86	100	71	--	72	75	222	120	171	---	202	251
16. Computer Sci.	-.-	-.-	-.-	0.2	0.1	0.0	--	--	--	6	2	2	---	---	---	63	70	42	---	---	---	292	234	172
TOTALS:	14.0	10.2	10.4	13.4	10.4	9.2																		

APPENDIX J

TRACK COMPARISONS: Personal Service & Development Courses

	Percentage of Credits						Percentage of Students						Mean Credit Values						Mean Grade Point Averages					
	I			II			I			II			I			II			I			II		
	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V	A	G	V
1. Work Experience*	1.0	1.7	1.2	0.9	2.0	2.1	16	21	15	18	27	23	88	105	100	72	82	93	351	304	300	326	311	306
2. Health Education	1.2	1.4	1.5	1.2	1.3	1.3	53	60	66	46	45	46	48	44	44	44	47	43	286	204	194	289	232	221
3. Driver Education	0.0	0.0	0.0	1.0	1.1	1.0	0	0	0	61	58	56	23	00	10	34	36	34	283	---	400	281	256	261
4. Foods/Cooking**	0.2	0.8	0.8	0.4	0.7	0.5	5	13	16	11	19	13	79	98	83	62	55	57	301	249	247	305	241	271
5. Health & P.E.***	0.1	0.0	0.0	0.9	0.7	0.8	1	1	1	13	11	12	73	64	42	87	80	87	319	321	341	329	287	264
6. Train.Adulthood	0.0	0.0	0.0	0.4	0.7	0.4	1	2	1	12	22	14	67	59	50	58	59	55	307	269	269	304	266	249
7. Infant/Ch. Care**	0.0	0.0	0.1	0.2	0.4	0.3	0	0	1	6	11	9	83	150	137	64	58	65	320	200	242	297	254	288
8. Consumer Educ.	0.1	0.1	0.1	0.2	0.4	0.3	3	8	3	8	14	10	51	30	50	49	49	49	220	282	198	276	222	265
9. Vocat. Guidance	0.0	0.0	0.0	0.2	0.3	0.3	0	0	0	5	7	8	37	--	10	67	77	82	300	---	400	322	266	226
10. Home Management	0.0	0.2	0.1	0.1	0.2	0.1	1	5	3	3	6	4	84	84	83	63	47	53	279	216	213	305	226	262
11. Personal Guidance	0.0	0.0	0.0	0.1	0.1	0.1	0	0	0	3	5	3	--	---	---	45	46	34	---	---	---	276	222	239
TOTALS:	3.0	4.2	3.8	5.6	7.9	7.1																		

* We distinguish "Work Experience" from "Cooperative Education." The former is generally unsupervised and randomly connected to any curriculum a student may be pursuing. The latter is normally part of the Vocational Education curriculum and involves field supervision.

** Non-Vocational courses. There are also vocational versions of these courses, which we have classified under "Specialty Home Economics."

*** This is a combination course that is distinct from the usual "Physical Education" requirements.

APPENDIX K

Institutions of Higher Education Sampled in Blackburn, et al:
Distribution by Carnegie Type

Type	*N sampled*	*N responded*
Research I – public	12	10
Research I – private	12	12
Research II – public	12	10
Research II – private	12	11
Doctoral-granting I – public	12	12
Doctoral-granting I – private	12	11
Doctoral-granting II – public	12	10
Doctoral-granting II – private	12	10
Comprehensive I – public	33	33
Comprehensive I – private	12	12
Comprehensive II – public	12	12
Comprehensive II – private	12	12
Liberal arts I – private	21	21
Liberal arts II – public	12	6
Liberal arts II – private	28	28
Two-year – public	25	23
Two-year – private	39	38
Total	288	271

Blackburn, et al, Table 3, p. 6

Proportions of Undergraduate Education Required in General Education, the Major, and Electives, by Institutional Type (in percentages)

	General education (mean)		*Major requirements (range)*		*Available electives (range)*	
	1967	*1974*	*1967*	*1974*	*1967*	*1974*
Research I – public	42	41	25-40	24-38	18-33	21-35
Research I – private	42	33	21-38	22-43	20-37	24-45
Research II – public	41	35	28-40	23-42	19-31	23-42
Research II – private	44	33	26-42	25-44	14-30	23-42
Doctoral-granting I – public	40	36	30-40	25-47	20-30	17-39
Doctoral-granting I – private	45	37	23-44	23-45	11-32	18-40
Doctoral-granting II – public	40	30	32-40	32-41	20-28	29-38
Doctoral-granting II – private	44	37	22-44	24-44	12-34	19-39
Comprehensive I – public	43	36	29-44	29-44	13-28	20-35
Comprehensive I – private	49	35	25-42	23-44	9-26	21-42
Comprehensive II – public	43	38	34-44	31-44	13-23	18-31
Comprehensive II – private	38	35	25-37	21-40	25-37	25-44
Liberal arts I – private	43	23	23-33	21-34	24-34	43-56
Liberal arts II – public	46	27	34-37	30-38	19-22	30-38
Liberal arts II – private	45	31	26-36	25-35	29-29	44-44
Two-year – public	53	53			47	47
Two-year – private	68	55			32	45

Blackburn, et al, Table 6, page 11

CHANGES IN ACADEMIC TRACK CURRICULUM: Language Arts

	% of Crds.		% of Students		Mean Cr. Val.		Mean GPA		% As & Bs		% Ds & Fs	
	I	II	I	II	I	II	I	II	I	II	I	II
1. English 1	4.5	3.6	96.2	76.0	103	98	273	278	62	67	7	7
2. English 2	4.6	3.5	97.2	75.9	103	96	264	270	57	65	9	12
3. English 3	4.3	2.5	91.3	55.2	103	94	265	269	57	65	10	12
4. English 4	4.1	2.0	88.0	43.7	102	94	264	271	57	65	10	10
5. Lit.: Genre, Period	0.1	1.4	1.5	34.4	90	54	255	285	48	68	11	12
6. Lit.: Special Topic	0.4	1.0	8.9	27.2	92	52	304	283	75	70	4	10
7. Remedial English	0.4	1.5	13.8	24.8	45	74	278	277	72	66	7	10
8. Speech I	0.9	0.7	23.3	20.9	84	59	280	297	71	77	8	6
9. Advanced Writing	0.7	0.9	13.4	20.3	82	69	322	327	82	69	2	5
10.Writing NEC	0.0	0.9	2.0	27.9	51	49	256	279	65	69	8	10
11.Drama & Debate	0.4	0.5	8.1	13.2	90	66	298	320	73	80	6	7
12.Business English	0.0	0.0	1.0	3.1	65	53	220	234	35	50	31	15
13.Advanced English	0.3	0.3	5.6	7.7	102	82	324	312	81	76	3	4
14.English NEC	0.4	0.2	3.1	5.4	164	54	336	298	94	73	3	11
15.Advanced Reading	0.0	0.1	0.6	4.8	53	47	337	310	89	77	0	4
16.Mass Media	0.0	0.2	0.0	8.0	---	52	---	278	--	62	--	10.
17.English Grammar	0.0	0.2	0.4	7.3	108	42	262	269	58	67	0	14
TOTAL:	21.1	19.5										

APPENDIX N

CHANGES IN ACADEMIC TRACK CURRICULUMS Social Studies

	% of Creds.		% of Students		Mean Cr. Val.		Mean GBR		% of As,Bs		% of Ds, Fs	
	I	II	I	II	I	II	I	II	I	II	I	II
1. U.S. Government	4.8	1.7	88.0	47.5	95	66	275	281	62	66	9	13
2. U.S. History I	4.5	4.0	95.0	83.9	103	92	277	281	62	66	10	11
3. Western Civilization	4.0	2.1	82.9	46.6	102	90	270	275	59	65	11	12
4. General Social Studies	0.4	1.1	6.7	19.6	100	90	285	270	66	62	7	11
5. American History 2*	0.4	1.0	7.6	24.7	102	72	292	291	74	71	8	9
6. Psychology	0.1	0.9	3.4	30.0	85	57	252	279	48	68	8	14
7. Geography	0.4	0.5	10.9	13.9	88	76	247	275	50	66	16	12
8. Sociology	0.2	0.5	7.6	20.5	68	54	296	292	75	72	7	7
9. Anthropology	0.4	0.5	8.7	13.2	99	77	295	289	70	68	6	7
10.Economics	0.4	0.5	9.9	19.2	78	54	267	279	62	69	13	10
11.Social Studies NEC	0.1	0.4	1.4	11.1	94	63	228	303	43	75	28	8
12.State Gov't & History	0.2	0.3	5.2	10.9	67	54	277	287	64	70	7	11
13.20th Century History	0.0	0.3	0.9	8.5	97	62	300	287	76	65	0	9
14.Law	0.0	0.2	0.5	7.0	56	45	328	244	94	58	0	19
15.Political Science	0.0	0.2	1.1	6.3	56	48	328	279	83	65	17	9
16.History NEC	0.0	0.2	0.4	3.5	104	92	256	304	73	77	18	7
17.Non-Western History	0.1	0.1	2.6	4.7	97	57	298	269	79	57	4	24
18.Black History	0.0	0.1	1.3	3.1	74	51	284	261	65	63	0	25
19.Ancient/Medieval History	0.0	0.1	0.7	2.9	100	68	238	242	48	47	29	19
20.Social Problems	0.0	0.1	0.4	5.3	96	51	222	301	73	75	17	12
TOTAL:	16.0	14.8										

APPENDIX O